



Geochemical Data from Produced Water Contamination Investigations: Osage-Skiatook Petroleum Environmental Research (OSPER) Sites, Osage County, Oklahoma

Open-File Report 2007-1055



Report Documentation Page				Form Approved OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE 2007		2. REPORT TYPE N/A		3. DATES COVERED -	
4. TITLE AND SUBTITLE Geochemical Data from Produced Water Contamination Investigations: Osage-Skiatook Petroleum Environmental Research (OSPER) Sites, Osage County, Oklahoma				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) U.S. Department of the Interior 1849 C Street, NW Washington, DC 20240				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release, distribution unlimited					
13. SUPPLEMENTARY NOTES The original document contains color images.					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT SAR	18. NUMBER OF PAGES 55	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			



Geochemical Data from Produced Water Contamination Investigations: Osage-Skiatook Petroleum Environmental Research (OSPER) Sites, Osage County, Oklahoma

By James J. Thordsen, Yousif K. Kharaka, Gil Ambats, Evangelos Kakouros, and Marvin M. Abbott

Open-File Report 2007-1055

**U.S. Department of the Interior
U.S. Geological Survey**

U.S. Department of the Interior
DIRK KEMPTHORNE, Secretary

U.S. Geological Survey
Mark D. Myers, Director

U.S. Geological Survey, Menlo Park, California 2007

For product and ordering information:
World Wide Web: <http://www.usgs.gov/pubprod>
Telephone: 1-888-ASK-USGS

For more information on the USGS—the Federal source for science about the Earth,
its natural and living resources, natural hazards, and the environment:
World Wide Web: <http://www.usgs.gov>
Telephone: 1-888-ASK-USGS

Suggested citation:
Thordsen, J.J., Kharaka, Y. K., Ambats, G., Kakouros, E., Abbott, M.M., 2007, Geochemical data from
produced water contamination investigations: Osage-Skiatook Petroleum Environmental Research (OSPER)
sites, Osage County, Oklahoma: U.S. Geological Survey Open-File Report 2007-1055, 19 p.

Any use of trade, product, or firm names is for descriptive purposes only and does not imply
endorsement by the U.S. Government.

Contents

Abstract.....	6
Introduction	6
Methods	7
Drilling and well completions	7
Sampling methods	8
Data Summary.....	9
Acknowledgements	10
References Cited	11

Figures

1. Map showing the locations of OSPER sites A and B, adjacent to Skiatook Lake in Osage County, Oklahoma.	12
2. Map of the Skiatook Lake region of Osage County, Oklahoma, showing locations of sampled oil wells, domestic groundwater wells, and stratigraphic control wells at OSPER sites A and B.	13
3. Map of OSPER site A, showing location of monitoring wells.....	14
4. Map of OSPER site B, showing location of monitoring wells and surface water sampling sites	19

Appendix (www.pubs.usgs.gov/of/2007/1055/OFR_2007-1055_appendixAB.xls)

A. Location and construction characteristics of monitoring wells at the Osage-Skiatook Petroleum Environmental Research (OSPER) sites A and B, Osage County, Oklahoma.

B. Analytic data for water samples collected for the Osage-Skiatook Petroleum Environmental Research project.

Conversion Factors

SI to Inch/Pound

Multiply	By	To obtain
Length		
centimeter (cm)	0.3937	inch (in.)
millimeter (mm)	0.03937	inch (in.)
meter (m)	3.281	foot (ft)
kilometer (km)	0.6214	mile (mi)
Area		
square meter (m ²)	0.0002471	acre
hectare (ha)	2.471	acre
square kilometer (km ²)	0.3861	square mile (mi ²)
Volume		
cubic meter (m ³)	6.290	barrel (petroleum, 1 barrel = 42 gal)
liter (L)	0.2642	gallon (gal)
Mass		
gram (g)	0.03527	ounce (oz)
kilogram (kg)	2.205	pound (lb)

Temperature in degrees Celsius (°C) may be converted to degrees Fahrenheit (°F) as follows:

$$^{\circ}\text{F}=(1.8\times^{\circ}\text{C})+32$$

Vertical coordinate information is referenced to the insert datum name (and abbreviation) here, for instance, "North American Vertical Datum of 1988 (NAVD 88)"

Horizontal coordinate information is referenced to the insert datum name (and abbreviation) here, for instance, "North American Datum of 1983 (NAD 83)"

Altitude, as used in this report, refers to distance above the vertical datum.

Specific conductance is given in microsiemens per centimeter at 25 degrees Celsius (μS/cm at 25°C).

Concentrations of chemical constituents in water are given either in milligrams per liter (mg/L) or micrograms per liter (μg/L).

Geochemical Data from Produced Water Contamination Investigations: Osage-Skiatook Petroleum Environmental Research (OSPER) Sites, Osage County, Oklahoma

By James J. Thordsen, Yousif K. Kharaka, Gil Ambats, Evangelos Kakouros, and Marvin M. Abbott

Abstract

We report chemical and isotopic analyses of 345 water samples collected from the Osage-Skiatook Petroleum Environmental Research (OSPER) project. Water samples were collected as part of an ongoing multi-year USGS investigation to study the transport, fate, natural attenuation, and ecosystem impacts of inorganic salts and organic compounds present in produced water releases at two oil and gas production sites from an aging petroleum field located in Osage County, in northeast Oklahoma. The water samples were collected primarily from monitoring wells and surface waters at the two research sites, OSPER A (legacy site) and OSPER B (active site), during the period March, 2001 to February, 2005. The data include produced water samples taken from seven active oil wells, one coal-bed methane well and two domestic groundwater wells in the vicinity of the OSPER sites.

Introduction

The U.S. Geological Survey is investigating the impacts of produced water and hydrocarbon releases at two research sites under the Osage-Skiatook Petroleum Environmental Research (OSPER) project. The two OSPER research sites “A” and “B” are located within the Lester and Branstetter leases, respectively, in the southeastern part of the Osage Reservation, Osage County, in northeastern Oklahoma (fig. 1). Both of these sites are located on Federal lands (Osage Nation holds the mineral rights and the Army Corps of Engineers holds the surface rights) adjacent to Skiatook Lake, a 4,250-hectare reservoir that provides drinking water to the local communities and is a major recreational fishery. Site A is the legacy or “depleted” site, which is impacted by produced water and hydrocarbon releases that occurred primarily 65-80 years ago. Site B is the “active” site, which is similar to site A in terms of oil production and size of impacted area, but is actively producing from stripper wells and continues to be impacted by ongoing produced water and hydrocarbon releases to this day.

Investigations aimed at mapping and characterizing the geology, hydrology, contaminant sources and impacted areas at the OSPER sites began in February, 2001 and continue to present. Initial results of investigations at the OSPER sites are discussed in Kharaka and Otton, 2003, and reports therein, including location, geologic setting, and oil production history (Otton and Zielinski, 2003), geophysical characterization of subsurface geology and hydrology by ground electromagnetic (EM) and DC resistivity surveys (Smith and others, 2003), aqueous

geochemistry (Kharaka and others, 2003), organic microbial biochemistry of hydrocarbons, (Godsy and others, 2003), hydrology (Herkelrath and Kharaka, 2003), and soil geochemistry (Zielinski and others, 2003; Rice and others, 2003, and Kampbell and others, 2003). The OSPER sites have been extensively surveyed to a high degree of accuracy using real-time kinematic (RTK) global positioning system (GPS) surveys (Abbott, 2003).

In March 2001, a reconnaissance survey was conducted by the USGS in which water, oil, and gas samples were taken from eight active oil wells located in the Branstetter lease (site B) and in areas adjoining the Lester lease (site A) to characterize the crude oil and produced water contaminant sources (fig. 2). Water samples were also obtained from Skiatook Lake and two domestic water wells, to characterize the chemical and isotopic compositions of the pristine local ground and surface waters. Water samples were also collected during this time from several seeps, pools and shallow hand-dug holes at site B.

In February, 2002, intensive studies of the OSPER sites began, which included the drilling, coring, and completion of numerous monitoring wells in and around the impacted areas at both sites. Holes were drilled using rotary core, auger core, or direct push (Geoprobe®) rigs. Most of these holes were completed as monitoring wells, with 2.5 or 5.1 cm diameter PVC tubing and screened intervals at favorable water-bearing zones. Most of the rotary- and auger-drilled holes were completed with multiple wells (2 or 3). As of May, 2004, a total of 82 holes were drilled (42 at site A; 40 at site B) and 103 screened monitoring wells (58 at site A, 45 at site B) were completed and conditioned for hydrologic monitoring and water sampling.

We have carried out eight major sampling trips and several minor trips to the OSPER sites to collect water samples and important field parameters, including water levels and in-situ temperature and electrical conductivity measurements, from monitoring wells and other surface waters. Presented in this report are the major and trace inorganic solutes, organic components, and water isotope results from 345 water samples collected through February, 2005. These data are being released at this time with minimal interpretation. Some results, with interpretations, from these data have been presented in Kharaka and others (2003, 2005, 2007). Studies are continuing at the OSPER sites to evaluate the long-term and short-term effects of hydrocarbons and the dissolved and suspended constituents of produced water on soil and ground and surface waters, and the natural processes that may be impacting those effects.

Methods

Drilling and well completions

The locations of monitoring wells for OSPER sites A and B are shown in figures 3 and 4, respectively, and the location and well completion parameters are summarized in Appendix A. Well locations were selected on the basis of: (1)- the presence of salt scars, degraded oil, brine pools, dead trees and shrubs and other visible surface features; (2)- results of electrical conductance, Cl, Br and SO₄ measurements on aqueous leachates from samples of shallow soil (0-15 cm) and selected soil profiles (Zielinski and others, 2003); and (3)- results of electromagnetic (EM) and DC resistivity surveys used to map the subsurface distribution of salt in groundwater, soil and bedrock (Smith and others, 2003). Additional wells were sited based on results of chemical analysis of water samples obtained from prior drilled wells.

At each site, relatively deep wells were located and drilled at some distance from the impacted areas in order to characterize the local stratigraphy (Otton and Zielinski, 2003) and local groundwater (Kharaka and others, 2003). These wells, designated as “R” for “rotary” (AR-01 at site A; BR-01 and BR-02 at site B; fig. 2), are distinct from the other monitoring wells in

that they were drilled with a rotary bit, which required water for cooling; also, prior to completion, additional water was introduced to the open holes to facilitate geophysical logging. These wells required additional cleaning and water sampling, compared to the auger-drilled wells (designated as “A”) and direct-push wells (designated as “E”), which were drilled without the aid of water.

After drilling, the holes were prepared for completions. Wet holes were repeatedly cleaned of water and slough using submersible pumps and/or hand bailers. Screen intervals were determined based on shows of water-bearing zones in drill cuttings, recovered core, or the hole itself. The rotary (“R”) wells and auger-core (“A”) wells were of sufficient bore diameter (> 20 cm) and usually sufficient depth (~5 to 20 m for “A” wells; 21-30 m for “R” wells) that multiple water bearing zones were identified and later screened. Most “A” and “R” wells were completed with two screened intervals, typically screened intervals of 5-10 ft using 5.1 cm diameter PVC. The site A wells AA-10 and AA-11 were completed with 3 screened wells. The direct-push “E” holes were typically shallower (~1-6 m depth) and had a smaller borehole diameter (~4 cm); all of the “E” holes were completed with a single screened well, generally with screened intervals set at 1 to 2.5 ft, using 2.5 cm diameter PVC. Clean and graded sand was used around the screened intervals and bentonite pellets and chips were used to isolate screened intervals in wells with multiple completions. The bottom of the wells were capped. A single shallow open-hole well was created at site A (AP-01), by hand-pushing a length of core liner into the asphaltic pit (fig. 3).

Monitoring wells, after completion, were cleaned numerous times using hand bailers or submersible pumps until the electrical conductivity was determined to be stable. During sampling trips, which typically were 3 to 12 months apart, the usual procedure was to: (1) measure static water levels in the wells; (2) obtain in-situ measurement of conductivity and temperature using submersible probes; (3) pump the wells (usually 1 to 3 well-bore volumes, depending on recharge rates and conductance stability); and (4) allow the well to refill (usually several hours to overnight). Periodically, in-situ measurements of dissolved oxygen (DO) and Eh were also performed prior to pumping and sampling. Water samples for analysis were collected with either Teflon® bailers or submersible or peristaltic pumps, with Teflon or tygon tubing.

Sampling methods

The methods used in sample collection, preservation and field and laboratory determinations of chemical components and isotopes are detailed in Kharaka and Hanor (2004), and Kharaka and others (2000, 2003). Most field chemistry was performed in a mobile laboratory equipped with pH meters, a spectrophotometer, and filtration, titration and other field equipment. Field determinations included conductance, pH, alkalinity, H_2S and NH_4 . Raw water samples were usually filtered through a 0.1 μm filter using either a syringe, peristaltic pump or compressed nitrogen. Filtered samples were stored in high-density polyethylene bottles prerinsed with deionized water for anions, and prerinsed with 5% nitric acid (HNO_3) then deionized water for metals and silica. The aliquots for metal and silica were acidified to pH ~1 with ultrex-grade nitric acid (HNO_3). Sample aliquots for dissolved organic carbon (DOC), carboxylic acid anions, and BTEX organics, were collected without headspace in cleaned and burned 40 ml amber glass vials and were stored below 4°C. Samples for DOC were filtered through 0.1 μm . Samples for carboxylics were filtered through 0.1 μm and preserved with 40 mg/L mercuric chloride (HgCl_2); Samples for BTEX were stored unfiltered, acidified to pH~1 with ultrex-grade hydrochloric acid (HCl). For water isotopes, two 20-ml glass bottles with polyseal caps were filled with raw water.

Water samples for tritium analyses were collected in 1-liter glass bottles with Teflon[®] polyseal caps.

All of the water samples were analyzed for inorganic and organic solutes at USGS Water Resources laboratories in Menlo Park, CA. Concentrations of major, minor and trace cations, B and SiO₂ were determined by inductively coupled plasma mass spectrometry (ICP-MS). Concentrations of Cl, Br, NO₃, PO₄, SO₄, and organic carboxylic acid anions (acetate, butyrate, formate, malonate, oxalate, propionate, and succinate) were determined by ion chromatography (IC). Dissolved organic carbon (DOC) was determined with a MQ-1001 (MQ Scientific) high-temperature, non-catalytic, organic carbon analyzer. Concentrations of BTEX compounds (benzene, toluene, ethylbenzene, m-xylene, p-xylene, and o-xylene) were determined with a SRI-8610C gas chromatograph (GC), using flame ionization detector (FID) and 30m MXT-Volatile column. The reported concentrations for major cations and anions carry an uncertainty of $\pm 3\%$. Precision values for minor and trace chemicals are generally $\pm 5\%$, but could be $\pm 10\%$ for values close to detection limits (Kharaka and Hanor, 2004).

Stable water isotopes were determined in the USGS Stable Isotope Laboratories in Menlo Park, CA or Reston, VA. Results for stable isotope measurements are reported in δ -values that are expressed in parts per thousand (per mil, ‰) relative to Standard Mean Ocean Water (SMOW). In the case of oxygen, the equation used is:

$$\delta^{18}\text{O} = \left(\frac{(^{18}\text{O}/^{16}\text{O})_{\text{sample}}}{(^{18}\text{O}/^{16}\text{O})_{\text{SMOW}}} - 1 \right) \times 10^3,$$

and in the case of hydrogen, the equation used is:

$$\delta^2\text{H} = \left(\frac{(^2\text{H}/^1\text{H})_{\text{sample}}}{(^2\text{H}/^1\text{H})_{\text{SMOW}}} - 1 \right) \times 10^3.$$

The Standard Deviation of reported values for samples are $\pm 0.2\text{‰}$ for $\delta^{18}\text{O}$ and $\pm 2\text{‰}$ for δD . Tritium concentration is reported in Tritium Units (1 TU = 1 tritium atom/ 10^{18} hydrogen atoms) ± 1 sigma uncertainty (Thatcher and others, 1977).

Data Summary

Appendix A contains a summary of the locations and well completion parameters for the site A and site B monitoring wells. Well names are identified by a letter “A” or “B” which indicates OSPER site A or B, followed by a letter “A”, “E”, “R” or “P” for well type (auger, direct-push Geoprobe, rotary, and hand-pushed), followed by the well number, and for wells having multiple completions, a letter “S”, “M” or “D”, indicating the shallow, middle, and deep completions, respectively.

Appendix B contains analytical results for 345 water samples. The water samples are presented in the following order:

- Local domestic groundwater wells: 2 samples from 2 wells near site A, (fig. 2).
- Local oil/gas wells: 8 samples, 7 from oil wells; and 1 coal-bed methane well (fig. 2).
- Skiatook Lake water: 7 samples, collected during the period October, 2001 to May, 2004. Lake water samples were collected near site A or B, except 01OS-111 which was collected near the Skiatook Lake dam (fig. 2).

- Site A, monitoring well samples: 171 water samples from 58 monitoring wells (fig. 3).
- Site B, monitoring well samples: 146 water samples from 45 monitoring wells (fig. 4).
- Site B, surface samples: 10 water samples from 6 different surface sites and including a sample (02OS-314) of produced water from the brine tank (fig. 4).

The groupings of groundwater wells, oil/gas wells, and Skiatook Lake samples are ordered by date. The site A and site B well sample groups are ordered by well number, then by date. The site B surface waters are order by sample location, then by date.

The analytic data for water samples are organized in Appendix B (from left to right) by site identification, date and time, field parameters (specific conductance, pH, temperature, alkalinity), total dissolved solids, major inorganic solutes (in alphabetical order), minor solutes (including infrequently analyzed solutes, such as H₂S and ammonia), organic compounds, and finally stable water isotopes and tritium. Solutes and organic compounds that have qualify information, such as “below” (indicated by “<” symbol) or “near” (indicated by “n”) lower detection limit, are preceded by a qualifier column. The water temperatures reported are the temperature from the conductivity/temperature at the time the water sample was processed; and they are not necessarily the in-situ water temperature.

Acknowledgements

We are grateful to the Osage Nation, the Army Corps of Engineers and Bureau of Indian Affairs, as well as the field operators for permission to conduct research at these sites. We are also grateful for the financial support for this research provided by DOE National Petroleum Technology Office, E&P Environmental (Nancy Comstock, Project Coordinator). Shallow drilling at the sites was carried out with equipment and operators from USEPA, Ada Research Laboratory, particularly Ken Jewell and Donald Kampbell. We are grateful to USGS colleagues Tyler Coplen and Carol Kendall, and their respective laboratories, for stable water isotope analysis, Bob Michel for tritium analyses, and Brent Topping for DOC analysis. We are also grateful for logistical and field support from our USGS colleagues at the Tulsa field office, Jim Wellman (Supervisor), Caleb Cope, and Kyle Davis.

References Cited

- Abbott, M.M., 2003, Real-Time kinematic (RTK) surveying at the Osage-Skiatook Petroleum Environmental Research sites, Osage County, Oklahoma: U.S. Geological Survey Water-Resources Investigations 03-4260, p. 147-155.
- Godsy, E.M., Hostettler, F.D., Warren, Ean, Paganelli, V.V., and Kharaka, Y.K., 2003, The fate of petroleum and other organics associated with produced water from the Osage-Skiatook petroleum environmental research site, Osage County, Oklahoma: U.S. Geological Survey Water-Resources Investigations 03-4260, p. 84-102.
- Herkelrath, W.N. and Kharaka, Y.K., 2003, Hydrologic controls on the subsurface transport of oil-field brine at the Osage-Skiatook petroleum environmental research "B" site, Oklahoma: U.S. Geological Survey Water-Resources Investigations 03-4260, p. 111-123.
- Kampbell, D.H., An Y-J., Smith, M.W., and Abbott, M.A., 2003, Impact of oil production releases on some soil chemical properties at the OSPER sites: U.S. Geological Survey Water-Resources Investigations 03-4260, p. 103-110.
- Kharaka, Y.K., and Hanor, J.S., 2003, Deep fluids in the continents: I. Sedimentary basins, J.I. Drever, ed., *Treatise On Geochemistry: Surface and Ground Water, Weathering, and Soils*, Oxford, Elsevier Ltd., v. 5, p. 499-540.
- Kharaka, Y.K., and J.K. Otton, 2003, Environmental impacts of petroleum production: Initial results from the Osage-Skiatook Petroleum Environmental Research Sites, Osage County, Oklahoma: U.S. Geological Survey Water-Resources Investigations Report 03-4260, 159 p.
- Kharaka, Y.K., Lundegard, P.D., and Giordano, T.H., 2000, Distribution and origin of organic ligands in subsurface waters from sedimentary basins. in Giordano, T.H., and Kettler, R.M., eds., *Ore Genesis and Exploration: The Role of Organic Matter: Reviews in Economic Geology*, v. 9, p. 119-131.
- Kharaka, Y.K., Thordsen, J.J., Kakouros, E., and Abbott, M.M., 2003, Fate of inorganic and organic chemicals in produced water from the Osage-Skiatook Petroleum Environmental Research sites, Osage County, Oklahoma: U.S. Geological Survey Water-Resources Investigations 03-4260, p. 56-83.
- Kharaka, Y.K., Thordsen, J.T., Kakouros, E., and Herkelrath, W.N., 2005, Impacts of petroleum production on ground and surface waters: Results from the Osage-Skiatook Petroleum Environmental Research A site, Osage County, Oklahoma: *Environmental Geosciences*, v. 12, no 2, p. 127-138.
- Kharaka, Y.K., Kakouros, E., Thordsen, J., Ambats, G. and Abbott, M.M., 2007, Fate and Groundwater Impacts of Produced Water Releases at OSPER "B" Site, Osage County, Oklahoma: *Applied Geochemistry*, in press.
- Otton, J.K. and Zielinski, R.A., 2003, Produced water and hydrocarbon releases at the Osage-Skiatook petroleum environmental research studies, Osage county Oklahoma: Introduction and geologic setting: U.S. Geological Survey Water-Resources Investigations 03-4260, p. 14-41.
- Thatcher, L.L., Janzer, V.J., and Edwards, K.W., 1977, Methods for determination of radioactive substances in water and fluvial sediments, *Techniques of Water-Resources Investigations of the US Geol. Survey*, Book 5, Chapter A5 79-81.

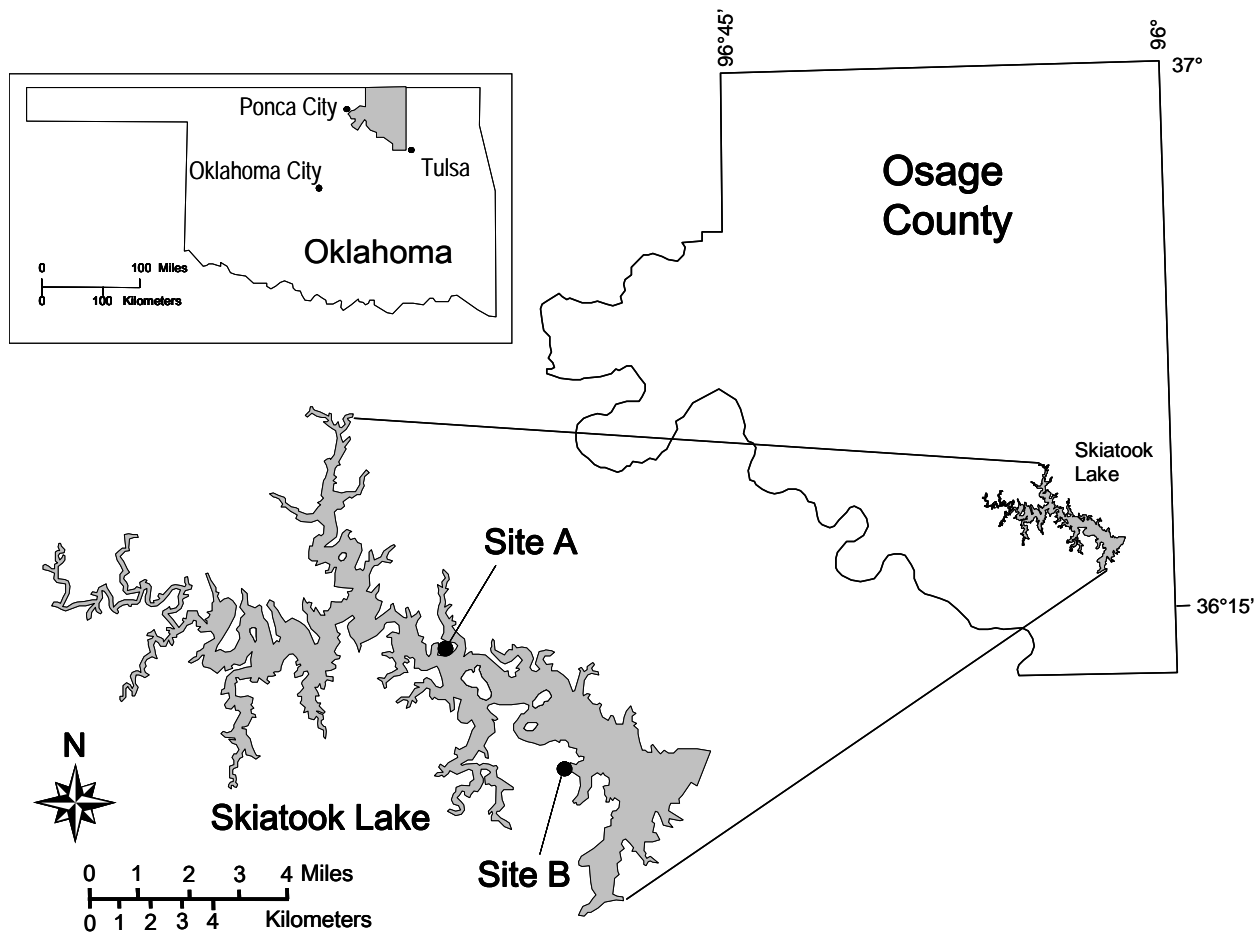


Figure 1. Map showing the locations of OSPER sites A and B, adjacent to Skiatook Lake in Osage County, Oklahoma.

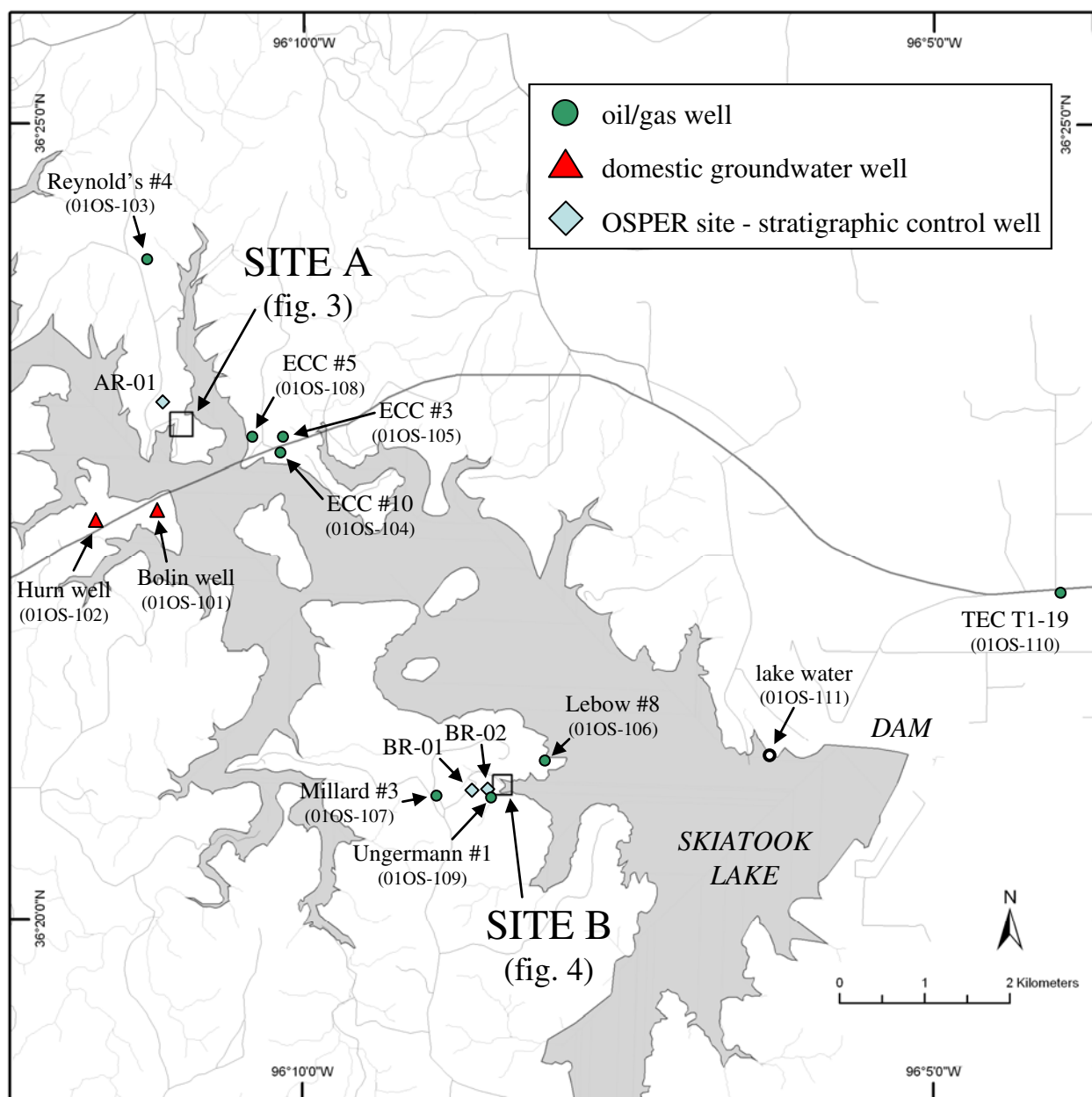


Figure 2. Map of the Skiatook Lake region of Osage County, Oklahoma, showing locations of sampled oil wells, domestic groundwater wells, and stratigraphic control wells at OSPER sites A and B. Also shown is the lake water sample 01OS-111, near dam.

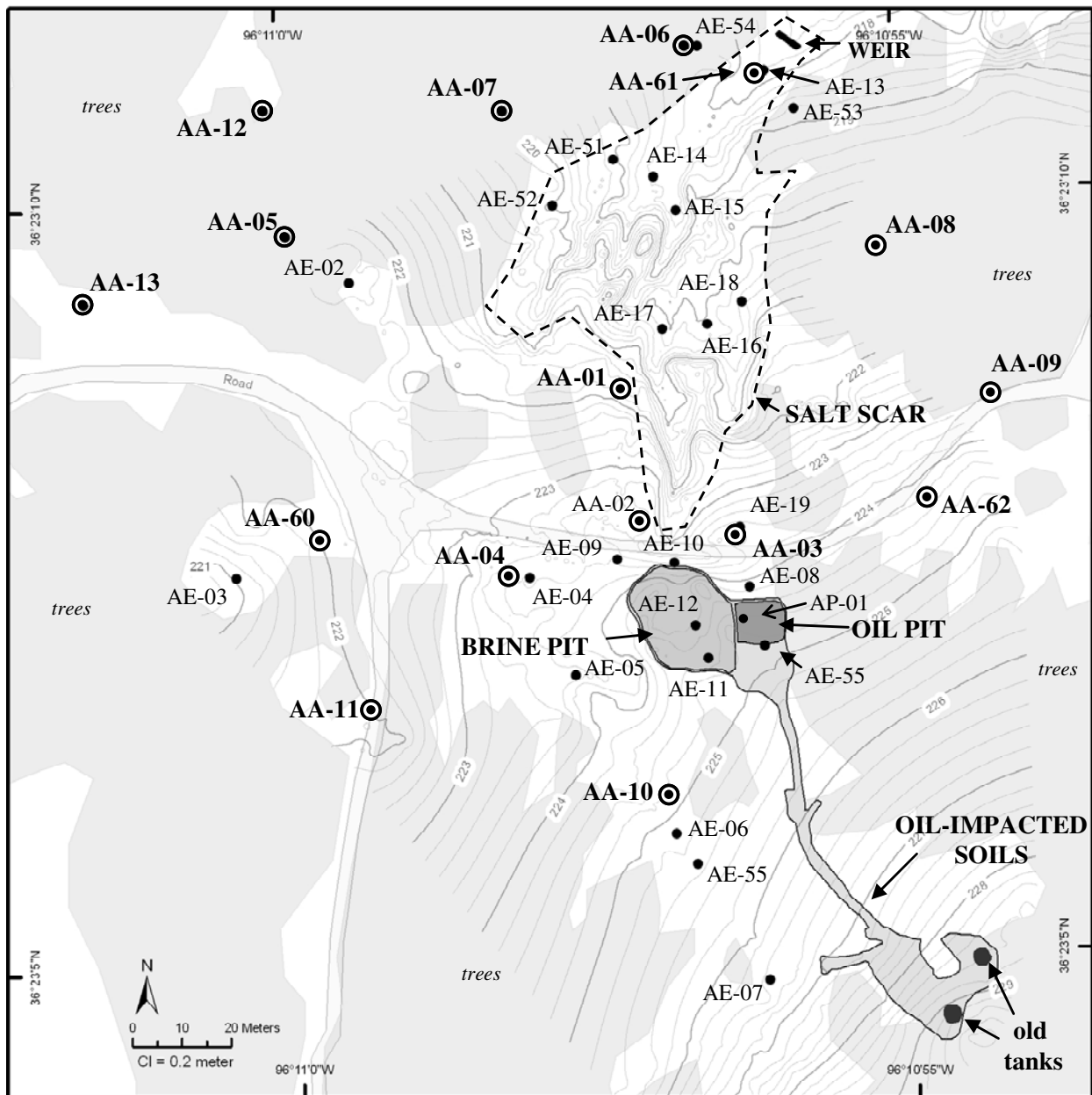


Figure 3. Map of OSPER site A, showing location of monitoring wells.

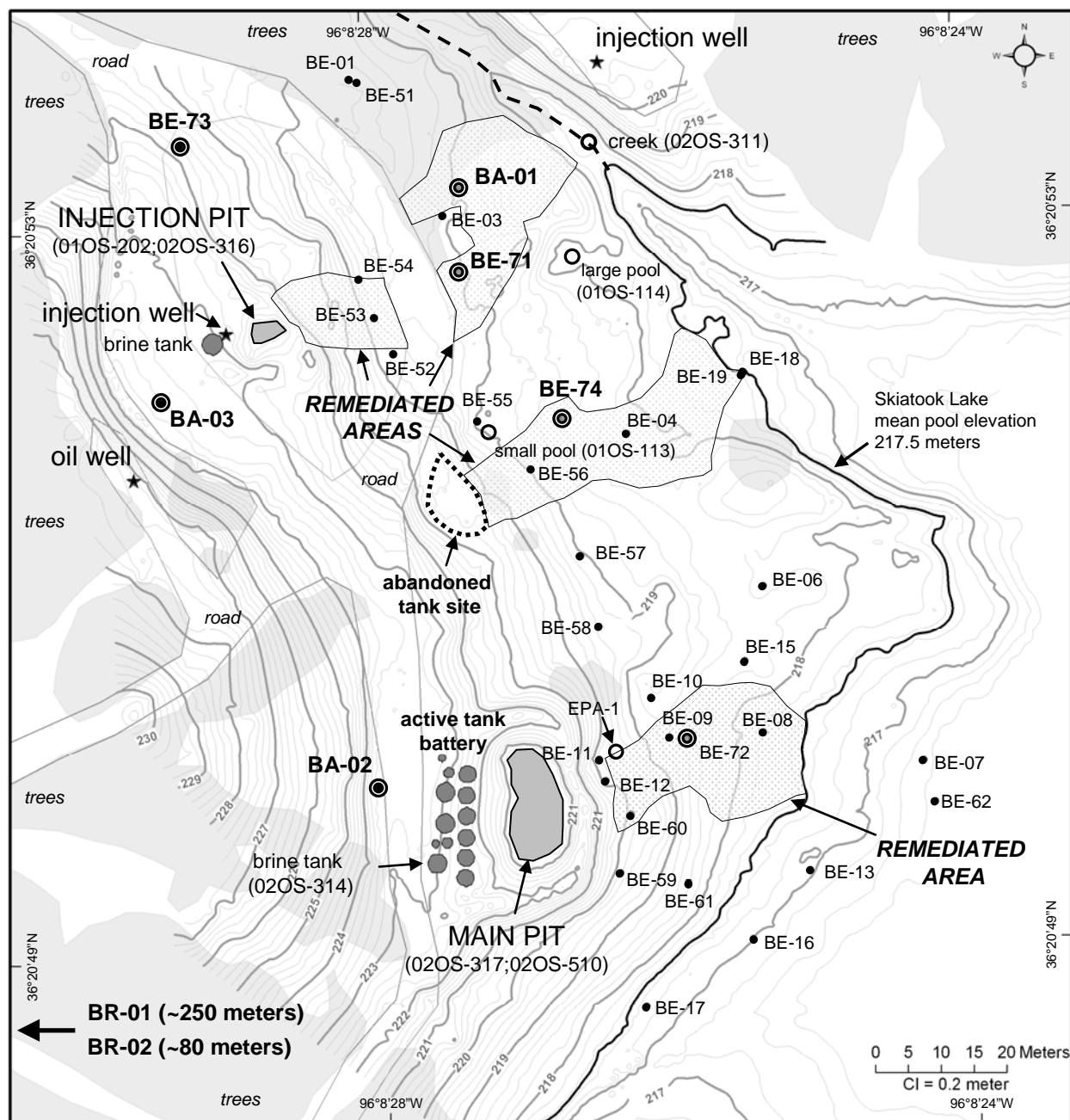


Figure 4. Map of OSPER site B, showing location of monitoring wells and surface water sampling sites.

Appendix B. Analytic data for water samples collected for the Osage-Skiatook Petroleum Environmental Research project.

[-, not determined; column labeled q followed by an element/compound contains the qualify information for the reported analytic concentration for the element; <, value

Field site	Field Sample ID	Station name	Site Identification	Collection Date	Time	field	field	field	field	field	inorganic	inorganic	
						Specific conductance, field (µS/cm)	pH, field, (standard units)	whole water Temperature (°C)	Alkalinity, water dissolved, total incremental titration, field (mg/L as HCO3)			Dissolved solids, total (mg/L)	Barium, dissolved (mg/L as Ba)
Local domestic ground water wells													
	01OS-101	Bolin well	362228096113701	03/05/2001	16:25	928	6.04	18.4		72	518	0.14	
	01OS-102	Hurn well	362333096110801	03/06/2001	11:30	490	7.18	17.8		269	420	0.21	
Local oil/gas wells													
	01OS-103	Reynolds #4	362408096111301	03/06/2001	10:00	192,000	6.19	14.5		109	177,000	451	
	01OS-104	ECC #10	362355096100901	03/07/2001	-	163,000	6.69	21.7		244	134,000	339	
	01OS-105	ECC #3	362301096100801	03/07/2001	14:30	191,000	6.06	23.3		105	185,000	461	
	01OS-106	Lebow #8	362159096080301	03/08/2001	-	185,000	6.29	34.0		185	162,000	879	
	01OS-107	Millard #3	362146096095501	03/08/2001	-	149,000	6.39	20.8		146	123,000	311	
	01OS-108	ECC #5	362301096102301	03/09/2001	10:00	186,000	6.38	21.5		118	162,000	309	
	01OS-109	Ungermann #1	362146096082901	03/09/2001	14:30	156,000	6.33	25.4		182	128,000	396	
	01OS-110	TEC T1-19 (coal-bed methane)	362202096045801	03/10/2001	10:00	145,000	6.81	24.0		280	114,000	12.3	
Skiatook Lake													
	01OS-111	Skiatook Lake, near dam	-	03/10/2001	14:45	224	6.71	7.2		74	153	0.05	
B	02OS-309	Skiatook Lake, site B	-	02/22/2002	13:00	287	8.08	11.8		80	187	0.07	
B	02OS-310	Skiatook Lake, site B	-	02/22/2002	13:30	254	8.14	10.9		76	165	0.06	
B	02OS-338	Skiatook Lake, site B	-	02/20/2002	15:30	245	7.11	4.7		-	120	0.05	
A	02OS-339	Skiatook Lake, site A	-	03/01/2002	10:00	246	6.95	23.0		-	102	0.04	
B	02OS-520	Skiatook Lake, site B	-	11/20/2002	8:30	270	6.60	11.9		86	181	0.06	
A	04OS-212	Skiatook Lake, site A	-	05/19/2004	13:45	246	7.70	28.0		77	167	0.06	
Site A; monitoring wells													
A	02OS-430	AA-01D	362308096105702	06/13/2002	9:15	38,000	6.54	16.2		445	25,400	0.35	
A	02OS-523	AA-01D	362308096105702	11/20/2002	14:00	37,700	6.28	19.7		1,460	24,700	4.4	
A	03OS-108	AA-01D	362308096105702	03/26/2003	11:30	37,000	6.45	15.1		1,220	23,900	6.0	
A	03OS-205	AA-01D	362308096105702	06/06/2003	17:00	37,100	6.53	21.5		1,230	24,100	5.8	
A	04OS-105	AA-01D	362308096105702	01/14/2004	12:00	36,800	6.58	18.3		834	23,100	3.5	
A	04OS-203	AA-01D	362308096105702	05/17/2004	17:00	39,100	6.23	27.4		532	24,600	0.71	
A	05OS-134	AA-01D	362308096105702	02/09/2005	12:30	35,500	6.30	13.0		382	22,400	0.19	
A	02OS-337	AA-02S	362307096105701	03/05/2002	9:00	7,150	7.50	16.3		519	4,350	0.11	
A	02OS-426	AA-02S	362307096105701	06/12/2002	17:00	19,800	6.23	18.5		255	11,700	0.66	
A	02OS-522	AA-02S	362307096105701	11/20/2002	13:00	19,000	6.11	19.8		254	11,300	0.21	
A	03OS-106	AA-02S	362307096105701	03/26/2003	9:30	18,800	6.14	15.8		236	11,300	0.15	
A	03OS-207	AA-02S	362307096105701	06/07/2003	14:00	19,200	6.18	22.6		257	11,400	0.55	
A	04OS-104	AA-02S	362307096105701	01/14/2004	11:00	19,400	6.22	15.5		309	11,600	0.13	
A	04OS-230	AA-02S	362307096105701	05/22/2004	9:00	19,400	6.05	18.2		229	11,300	0.43	
A	05OS-139	AA-02S	362307096105701	02/09/2005	15:45	18,700	6.21	15.1		236	11,300	0.23	
A	02OS-336	AA-02D	362307096105702	03/05/2002	9:10	4,600	7.66	16.3		633	3,190	0.08	
A	02OS-427	AA-02D	362307096105702	06/12/2002	17:30	3,420	6.91	17.8		824	2,770	0.14	
A	02OS-527	AA-02D	362307096105702	11/21/2002	10:00	2,240	6.95	22.4		854	2,010	0.15	
A	03OS-107	AA-02D	362307096105702	03/26/2003	10:20	2,220	7.27	17.9		953	2,010	0.13	
A	03OS-208	AA-02D	362307096105702	06/07/2003	15:00	2,710	7.28	21.5		973	2,270	0.11	
A	04OS-103	AA-02D	362307096105702	01/14/2004	9:30	2,190	7.04	14.8		813	2,270	0.06	

Field site	Field Sample ID	Station name	Site Identification	Collection Date	Time	Specific conductance, field (μS/cm)	pH, field, (standard units)	Temperature, water (°C)	Alkalinity, water dissolved, total incremental	Dissolved solids, total (mg/L)	Barium, dissolved (mg/L as Ba)
									titration, field (mg/L as HCO3)		
A	04OS-231	AA-02D	362307096105702	05/22/2004	9:40	2,550	6.98	20.0	801	2,100	0.04
A	05OS-140	AA-02D	362307096105702	02/09/2005	17:30	2,120	6.89	13.2	726	1,950	0.05
A	02OS-428	AA-03S	362307096105601	06/12/2002	18:00	6,050	6.64	18.8	301	3,460	1.9
A	03OS-103	AA-03S	362307096105601	03/25/2003	14:00	12,500	5.40	13.1	10	6,800	0.81
A	03OS-203	AA-03S	362307096105601	06/06/2003	15:00	6,970	5.61	21.3	23	3,730	0.49
A	04OS-205	AA-03S	362307096105601	05/18/2004	11:25	1,810	6.14	22.4	50	960	0.14
A	05OS-142	AA-03S	362307096105601	02/09/2005	18:30	1,840	6.02	15.6	51	1,020	0.12
A	02OS-429	AA-03D	362307096105602	06/12/2002	17:30	18,000	6.73	16.4	894	10,500	1.4
A	02OS-524	AA-03D	362307096105602	11/20/2002	15:00	19,600	6.63	13.0	641	12,100	1.0
A	03OS-104	AA-03D	362307096105602	03/25/2003	14:10	20,300	6.67	15.0	516	12,200	0.89
A	03OS-204	AA-03D	362307096105602	06/06/2003	16:10	13,200	6.74	19.6	365	7,620	0.40
A	04OS-116	AA-03D	362307096105602	01/16/2004	16:45	18,500	6.73	12.2	454	10,600	0.23
A	04OS-211	AA-03D	362307096105602	05/19/2004	13:30	7,040	6.94	23.8	228	3,980	0.32
A	05OS-141	AA-03D	362307096105602	02/09/2005	18:15	8,310	6.91	15.0	288	4,870	0.33
A	02OS-424	AA-04S	362307096105801	06/12/2002	16:15	9,630	5.66	-	54	5,300	6.3
A	02OS-526	AA-04S	362307096105801	11/20/2002	17:00	10,300	5.83	13.5	45	5,590	8.1
A	03OS-101	AA-04S	362307096105801	03/25/2003	13:15	9,900	5.53	11.0	34	5,310	5.6
A	03OS-201	AA-04S	362307096105801	06/06/2003	11:00	9,240	4.74	21.5	12	5,110	8.4
A	04OS-109	AA-04S	362307096105801	01/15/2004	11:45	9,910	5.49	14.4	33	5,870	5.9
A	04OS-201	AA-04S	362307096105801	05/17/2004	14:45	8,950	5.27	33.0	27	4,930	6.2
A	05OS-112	AA-04S	362307096105801	02/05/2005	10:30	8,510	5.15	14.3	20	4,720	7.3
A	02OS-425	AA-04D	362307096105802	06/12/2002	16:45	9,620	6.99	-	279	5,760	1.4
A	02OS-525	AA-04D	362307096105802	11/20/2002	16:00	10,210	5.50	12.5	26	5,480	8.1
A	03OS-102	AA-04D	362307096105802	03/25/2003	13:33	10,040	5.96	13.0	76	5,460	6.3
A	03OS-202	AA-04D	362307096105802	06/06/2003	13:30	9,960	5.87	20.2	94	5,540	6.7
A	05OS-113	AA-04D	362307096105802	02/05/2005	12:40	8,560	5.79	16.6	50	4,810	6.6
A	04OS-117	AA-05S	362309096105903	01/19/2004	13:00	19,900	6.18	10.3	117	11,200	3.2
A	04OS-226	AA-05S	362309096105903	05/21/2004	13:30	18,600	5.96	19.4	135	10,800	2.0
A	05OS-118	AA-05S	362309096105903	02/07/2005	12:30	17,200	5.84	8.4	82	10,000	1.8
A	04OS-118	AA-05D	362309096105904	01/19/2004	14:00	1,620	7.17	10.6	598	1,380	0.02
A	04OS-216	AA-05D	362309096105904	05/20/2004	11:15	1,610	6.93	19.8	592	1,390	0.02
A	05OS-117	AA-05D	362309096105904	02/07/2005	11:10	1,580	7.02	7.9	612	1,470	0.03
A	04OS-119	AA-06S	362310096105605	01/19/2004	14:45	47,500	6.51	8.0	438	29,300	0.95
A	04OS-233	AA-06S	362310096105605	05/22/2004	11:00	46,200	6.22	18.3	424	29,500	1.0
A	05OS-136	AA-06S	362310096105605	02/09/2005	14:30	47,500	6.33	13.8	436	30,000	0.74
A	04OS-120	AA-06D	362310096105606	01/20/2004	11:30	26,600	6.86	10.8	485	16,300	0.24
A	04OS-234	AA-06D	362310096105606	05/22/2004	11:30	46,000	6.33	19.8	460	29,500	0.52
A	05OS-135	AA-06D	362310096105606	02/09/2005	13:30	41,800	6.37	13.9	441	26,000	0.42
A	04OS-121	AA-07S	362310096105801	01/20/2004	13:00	32,700	6.18	11.6	395	20,800	0.08
A	04OS-222	AA-07S	362310096105801	05/21/2004	9:00	19,700	5.86	18.6	221	12,000	0.17
A	05OS-138	AA-07S	362310096105801	02/09/2005	15:45	19,500	5.69	14.1	121	11,800	0.22
A	04OS-153	AA-07D	362310096105802	01/24/2004	12:00	14,300	7.11	20.4	400	8,600	0.04
A	04OS-223	AA-07D	362310096105802	05/21/2004	9:30	20,300	6.37	19.3	343	12,700	0.12
A	05OS-137	AA-07D	362310096105802	02/09/2005	15:15	26,100	6.32	15.2	384	16,000	0.13
A	04OS-157	AA-08S	362309096105501	01/24/2004	13:40	15,800	6.87	20.4	803	9,310	0.10

Field site	Field Sample ID	Station name	Site Identification	Collection Date	Time	Specific conductance, field (μS/cm)	pH, field, (standard units)	Temperature, water (°C)	Alkalinity, water dissolved, total incremental	Dissolved solids, total (mg/L)	Barium, dissolved (mg/L as Ba)
									titration, field (mg/L as HCO3)		
A	04OS-221	AA-08S	362309096105501	05/20/2004	15:30	20,900	6.58	19.7	804	13,300	0.08
A	05OS-123	AA-08S	362309096105501	02/08/2005	11:00	24,000	6.69	10.7	704	14,900	0.08
A	04OS-156	AA-08D	362309096105502	01/24/2004	13:30	3,160	7.00	20.4	555	2,820	0.02
A	04OS-218	AA-08D	362309096105502	05/20/2004	12:15	3,100	6.79	21.9	587	2,850	0.02
A	05OS-124	AA-08D	362309096105502	02/08/2005	11:45	2,540	6.85	11.8	494	2,460	0.01
A	04OS-155	AA-09S	362308096105401	01/24/2004	13:00	4,170	6.98	20.4	979	3,520	0.06
A	04OS-232	AA-09S	362308096105401	05/22/2004	10:00	7,070	6.64	20.3	899	5,220	0.04
A	05OS-122	AA-09S	362308096105401	02/08/2005	10:00	7,340	6.94	12.2	1,300	5,670	0.04
A	04OS-154	AA-09D	362308096105402	01/24/2004	12:50	2,730	7.05	20.4	562	2,500	0.02
A	04OS-217	AA-09D	362308096105402	05/20/2004	12:00	2,670	6.76	20.3	556	2,500	0.02
A	05OS-121	AA-09D	362308096105402	02/08/2005	9:25	2,530	6.44	11.9	556	2,470	0.02
A	04OS-152	AA-10S	362306096105605	01/23/2004	14:20	2,440	6.86	20.4	247	1,450	0.58
A	04OS-224	AA-10S	362306096105605	05/21/2004	11:45	3,320	6.03	22.2	205	1,880	0.37
A	05OS-127	AA-10S	362306096105605	02/08/2005	14:30	3,320	5.89	9.0	114	1,820	0.28
A	04OS-151	AA-10M	362306096105606	01/23/2004	14:10	5,700	7.14	20.4	538	3,620	0.21
A	04OS-229	AA-10M	362306096105606	05/21/2004	16:00	17,900	6.64	20.0	408	10,700	1.1
A	05OS-126	AA-10M	362306096105606	02/08/2005	14:00	18,300	6.50	11.7	303	10,700	0.72
A	04OS-158	AA-10D	362306096105607	01/24/2004	14:15	1,870	7.16	20.4	454	1,620	0.03
A	04OS-215	AA-10D	362306096105607	05/20/2004	10:30	1,850	6.84	19.6	443	1,620	0.02
A	05OS-125	AA-10D	362306096105607	02/08/2005	12:45	1,810	6.87	11.5	441	1,660	0.02
A	04OS-161	AA-11S	362306096105901	01/24/2004	15:05	22,700	6.56	20.4	297	13,200	0.53
A	04OS-225	AA-11S	362306096105901	05/21/2004	12:15	17,500	6.24	21.5	311	10,300	0.55
A	05OS-131	AA-11S	362306096105901	02/09/2005	10:30	15,500	6.39	10.1	268	9,030	0.50
A	04OS-160	AA-11M	362306096105902	01/24/2004	14:55	16,000	6.93	20.4	376	8,860	0.23
A	04OS-228	AA-11M	362306096105902	05/21/2004	15:30	3,950	6.77	19.5	461	2,630	0.08
A	05OS-132	AA-11M	362306096105902	02/09/2005	11:30	8,750	6.91	12.8	488	5,470	0.18
A	04OS-159	AA-11D	362306096105903	01/24/2004	14:45	18,700	6.64	20.4	335	10,100	0.37
A	04OS-213	AA-11D	362306096105903	05/20/2004	9:00	1,260	6.86	20.3	417	1,050	0.03
A	05OS-130	AA-11D	362306096105903	02/09/2005	9:30	2,750	6.85	10.3	417	1,900	0.05
A	04OS-165	AA-12S	362310096110001	01/24/2004	16:30	12,700	6.88	20.4	460	7,070	0.25
A	04OS-227	AA-12S	362310096110001	05/21/2004	14:15	18,900	6.49	19.0	591	11,600	0.11
A	05OS-114	AA-12S	362310096110001	02/05/2005	14:30	1,140	7.23	19.2	424	939	0.05
A	04OS-164	AA-12D	362310096110002	01/24/2004	16:15	2,770	7.14	20.4	329	2,360	0.03
A	04OS-214	AA-12D	362310096110002	05/20/2004	10:00	2,470	6.82	20.1	324	2,210	0.01
A	05OS-115	AA-12D	362310096110002	02/05/2005	16:00	2,390	6.99	17.7	317	2,250	0.02
A	04OS-163	AA-13S	362309096110101	01/24/2004	16:00	1,320	7.22	20.4	372	1,010	0.24
A	04OS-220	AA-13S	362309096110101	05/20/2004	13:50	1,750	7.09	24.3	636	1,480	0.09
A	05OS-119	AA-13S	362309096110101	02/07/2005	14:45	1,290	7.20	7.6	811	1,330	0.09
A	04OS-162	AA-13D	362309096110102	01/24/2004	15:45	1,860	7.32	20.4	254	1,470	0.12
A	04OS-219	AA-13D	362309096110102	05/20/2004	13:30	1,850	7.10	21.1	362	1,530	0.05
A	05OS-120	AA-13D	362309096110102	02/07/2005	16:20	1,840	7.42	11.5	456	1,700	0.04
A	03OS-155	AA-60S	362307096105901	04/02/2003	9:00	716	7.54	28.5	190	541	0.04
A	03OS-218	AA-60S	362307096105901	06/05/2003	14:26	1,160	-	26.8	-	514	0.20
A	04OS-108	AA-60S	362307096105901	01/15/2004	10:50	2,960	6.49	14.0	192	1,830	0.42
A	03OS-154	AA-60D	362307096105902	04/02/2003	9:00	5,690	6.89	26.5	354	3,240	0.27

Field site	Field Sample ID	Station name	Site Identification	Collection Date	Time	Specific conductance, field (µS/cm)	pH, field, (standard units)	Temperature, whole water (°C)	Alkalinity, water dissolved, total incremental	Dissolved solids, total (mg/L)	Barium, dissolved (mg/L as Ba)
									titration, field (mg/L as HCO3)		
A	03OS-210	AA-60D	362307096105902	06/07/2003	17:30	4,490	6.97	18.1	338	2,550	0.30
A	04OS-107	AA-60D	362307096105902	01/15/2004	9:00	6,230	7.02	12.9	339	4,450	2.0
A	04OS-204	AA-60D	362307096105902	05/18/2004	10:20	5,710	6.73	23.6	337	3,290	0.32
A	05OS-116	AA-60D	362307096105902	02/07/2005	9:50	5,700	6.80	6.9	323	3,400	0.36
A	03OS-153	AA-61	362310096105604	04/02/2003	8:37	29,800	6.58	26.8	70	16,800	0.48
A	03OS-209	AA-61	362310096105604	06/07/2003	16:30	32,400	6.79	23.6	137	18,600	0.37
A	04OS-101	AA-61	362310096105604	01/13/2004	14:00	31,200	6.56	13.4	217	19,200	0.18
A	04OS-206	AA-61	362310096105604	05/18/2004	13:45	26,600	6.46	26.7	263	16,000	0.17
A	05OS-129	AA-61	362310096105604	02/08/2005	16:20	32,000	6.52	7.5	318	19,000	0.14
A	04OS-202	AA-62	362307096105401	05/17/2004	15:30	11,000	5.67	25.2	32	6,360	0.04
A	05OS-128	AA-62	362307096105401	02/08/2005	15:20	7,150	5.88	8.4	44	4,110	0.03
A	02OS-434	AE-04	362307096105803	06/13/2002	11:50	370	-	22.4	-	163	0.03
A	02OS-332	AE-05	362306096105701	03/03/2002	13:15	85	-	-	-	41	0.01
A	02OS-333	AE-06	362305096105602	03/03/2002	13:30	125	-	16.8	-	70	0.12
A	02OS-435	AE-06	362305096105602	06/13/2002	13:00	60	-	23.3	-	37	0.25
A	04OS-111	AE-06	362305096105602	01/15/2004	13:00	86	5.60	13.5	13	65	0.15
A	02OS-334	AE-07	362304096105601	03/03/2002	14:00	200	5.28	-	3	81	0.07
A	04OS-110	AE-07	362304096105601	01/15/2004	12:30	95	-	15.0	-	102	0.17
A	02OS-326	AE-08	362307096105603	03/01/2002	15:30	2,040	6.35	7.5	13	1,000	0.19
A	02OS-432	AE-08	362307096105603	06/13/2002	11:15	574	6.04	20.8	23	131	0.08
A	04OS-114	AE-08	362307096105603	01/15/2004	16:00	2,190	5.32	12.1	8	1,070	0.99
A	02OS-331	AE-10	362307096105604	03/03/2002	13:00	155	5.74	19.8	13	98	0.08
A	02OS-328	AE-12	362307096105605	03/03/2002	11:30	823	7.30	16.6	457	700	0.02
A	02OS-436	AE-12	362307096105605	06/13/2002	13:30	776	-	23.6	-	220	0.04
A	02OS-325	AE-13	362310096105601	03/01/2002	14:30	20,700	-	7.2	-	12,200	0.53
A	02OS-329	AE-13	362310096105601	03/03/2002	12:00	18,000	5.55	16.4	14	9,940	0.41
A	02OS-431	AE-13	362310096105601	06/13/2002	10:45	19,900	5.63	21.5	57	12,300	0.44
A	03OS-118	AE-13	362310096105601	03/27/2003	9:30	20,100	5.48	23.5	15	11,900	0.23
A	03OS-223	AE-13	362310096105601	06/07/2003	13:00	26,000	-	-	-	14,000	0.23
A	04OS-102	AE-13	362310096105601	01/13/2004	14:30	19,300	5.73	13.4	21	12,000	0.15
A	04OS-207	AE-13	362310096105601	05/18/2004	14:30	17,400	5.19	26.2	26	9,890	0.26
A	03OS-116	AE-14	362310096105602	03/26/2003	15:56	5,260	-	13.5	-	2,790	0.23
A	02OS-330	AE-15	362309096105601	03/03/2002	12:30	4,050	-	-	-	2,180	0.11
A	02OS-437	AE-15	362309096105601	06/13/2002	14:30	29,500	-	25.2	-	14,800	1.3
A	03OS-115	AE-15	362309096105601	03/26/2003	15:45	8,520	-	12.9	-	4,790	0.15
A	03OS-113	AE-16	362309096105602	03/26/2003	15:20	620	-	12.9	-	431	0.04
A	03OS-114	AE-17	362309096105603	03/26/2003	15:30	8,740	-	12.7	-	4,880	0.31
A	03OS-112	AE-18	362309096105604	03/26/2003	15:15	21,300	-	11.6	-	13,700	0.32
A	02OS-433	AE-19	362307096105606	06/13/2002	11:30	332	-	22.2	-	147	0.04
A	03OS-109	AE-51	362310096105701	03/26/2003	13:15	33,300	-	12.1	-	20,600	0.35
A	03OS-220	AE-51	362310096105701	06/05/2003	14:55	31,900	-	25.9	-	19,800	0.21
A	03OS-219	AE-52	362309096105701	06/05/2003	14:40	22,000	-	-	-	14,400	0.03
A	04OS-208	AE-52	362309096105701	05/19/2004	10:00	22,200	6.54	27.5	368	15,200	0.02
A	03OS-111	AE-53	362310096105501	03/26/2003	14:30	12,900	5.62	11.5	17	6,220	0.27
A	03OS-222	AE-53	362310096105501	06/05/2003	15:15	18,100	-	27.0	-	10,400	0.26

Field site	Field Sample ID	Station name	Site Identification	Collection Date	Time	Specific conductance, field (μS/cm)	pH, field, (standard units)	Temperature, whole water (°C)	Alkalinity, water dissolved, total incremental	Dissolved solids, total (mg/L)	Barium, dissolved (mg/L as Ba)
									titration, field (mg/L as HCO3)		
A	04OS-106	AE-53	362310096105501	01/14/2004	14:45	27,300	6.64	16.2	432	17,000	0.12
A	04OS-210	AE-53	362310096105501	05/19/2004	11:00	11,900	6.33	25.6	120	6,660	0.21
A	03OS-110	AE-54	362310096105603	03/26/2003	13:45	6,180	6.17	11.5	16	3,660	2.7
A	03OS-221	AE-54	362310096105603	06/05/2003	15:00	15,300	-	24.4	-	8,360	4.8
A	04OS-209	AE-54	362310096105603	05/19/2004	10:30	4,830	5.56	28.3	11	2,550	1.2
A	03OS-117	AE-56	362307096105607	03/26/2003	16:30	3,330	6.40	12.4	339	1,910	0.61
A	04OS-112	AE-56	362307096105607	01/15/2004	14:00	2,860	-	13.7	-	1,280	0.71
A	02OS-324	AP-01	362307096105608	02/28/2002	11:00	170,000	5.79	-	239	110,000	15.5
A	02OS-327	AR-01	362314096110701	03/03/2002	11:00	428	6.64	13.4	125	315	0.31
A	02OS-438	AR-01	362314096110701	06/13/2002	14:45	526	6.46	16.6	221	434	0.54
A	03OS-105	AR-01	362314096110701	03/25/2003	17:00	481	6.47	16.5	149	334	0.34
A	03OS-206	AR-01	362314096110701	06/07/2003	10:45	604	6.72	24.4	282	474	0.54
A	04OS-113	AR-01	362314096110701	01/15/2004	16:15	720	6.74	14.5	396	601	0.65
A	04OS-235	AR-01	362314096110701	05/22/2004	14:00	635	6.53	21.4	359	545	0.61
A	05OS-133	AR-01	362314096110701	02/09/2005	12:08	440	6.42	13.9	162	332	0.40
Site B; monitoring wells											
B	02OS-322	BA-01S	362052096802701	02/26/2002	15:30	18,500	7.14	16.5	161	11,100	0.25
B	02OS-403	BA-01S	362052096802701	06/10/2002	14:00	13,000	5.40	21.9	33	7,630	0.60
B	02OS-516	BA-01S	362052096802701	11/19/2002	12:00	15,600	6.74	15.9	482	11,700	0.06
B	03OS-141	BA-01S	362052096802701	04/01/2003	8:44	8,730	5.15	19.2	10	4,700	0.22
B	03OS-216	BA-01S	362052096802701	06/09/2003	18:45	9,700	6.44	24.3	216	6,160	0.09
B	04OS-125	BA-01S	362052096802701	01/22/2004	9:00	4,690	5.57	8.5	24	2,440	0.08
B	04OS-239	BA-01S	362052096802701	05/24/2004	13:30	8,770	6.25	25.7	292	6,240	0.12
B	05OS-106	BA-01S	362052096802701	02/03/2005	15:45	11,000	6.68	11.7	1,020	10,400	0.03
B	02OS-323	BA-01D	362052096802702	02/26/2002	16:00	12,900	7.03	17.9	459	8,990	0.12
B	02OS-405	BA-01D	362052096802702	06/10/2002	16:00	9,500	7.11	18.9	424	7,250	0.02
B	02OS-517	BA-01D	362052096802702	11/19/2002	12:30	9,600	7.49	19.1	406	7,100	0.02
B	03OS-142	BA-01D	362052096802702	04/01/2003	9:30	9,950	7.55	18.9	437	7,190	0.02
B	03OS-217	BA-01D	362052096802702	06/09/2003	19:00	8,500	7.15	21.1	521	6,980	0.02
B	04OS-126	BA-01D	362052096802702	01/22/2004	9:30	8,050	7.03	9.3	575	6,660	0.02
B	04OS-240	BA-01D	362052096802702	05/24/2004	14:00	7,330	6.90	24.8	568	6,560	0.02
B	05OS-107	BA-01D	362052096802702	02/04/2005	9:30	7,440	7.03	12.9	571	6,560	0.02
B	02OS-318	BA-02S	362050096802701	02/26/2002	13:30	10,500	7.48	17.1	990	8,890	0.05
B	02OS-319	BA-02D	362050096802702	02/26/2002	14:00	9,680	6.80	15.5	285	7,760	0.03
B	02OS-401	BA-02D	362050096802702	06/10/2002	10:30	8,100	6.75	18.0	1,030	7,990	0.01
B	02OS-501	BA-02D	362050096802702	11/12/2002	16:30	8,780	6.78	17.8	995	7,480	0.01
B	03OS-119	BA-02D	362050096802702	03/27/2003	15:50	8,540	6.81	18.6	987	7,490	0.02
B	03OS-211	BA-02D	362050096802702	06/09/2003	10:30	8,130	6.82	19.9	1,030	7,490	0.01
B	04OS-124	BA-02D	362050096802702	01/21/2004	14:30	8,810	6.75	12.3	1,040	7,680	0.01
B	04OS-238	BA-02D	362050096802702	05/24/2004	12:00	8,290	6.66	21.8	1,030	7,700	0.01
B	05OS-102	BA-02D	362050096802702	02/02/2005	15:15	8,190	6.63	13.4	1,020	7,550	0.01
B	02OS-320	BA-03S	362051096802801	02/26/2002	14:30	9,910	7.33	16.0	829	7,830	0.04
B	02OS-504	BA-03S	362051096802801	11/13/2002	14:30	18,700	6.69	20.1	887	11,400	0.08
B	03OS-120	BA-03S	362051096802801	03/28/2003	9:45	19,100	6.68	9.7	873	11,900	0.09
B	03OS-212	BA-03S	362051096802801	06/09/2003	12:00	20,300	6.67	22.3	890	12,800	0.11

Field site	Field Sample ID	Station name	Site Identification	Collection Date	Time	Specific conductance, field (µS/cm)	pH, field, (standard units)	Temperature, water (°C)	Alkalinity, water dissolved, total incremental	Dissolved solids, total (mg/L)	Barium, dissolved (mg/L as Ba)
									titration, field (mg/L as HCO3)		
B	04OS-122	BA-03S	362051096802801	01/21/2004	13:00	19,300	6.66	9.2	887	12,000	0.11
B	04OS-236	BA-03S	362051096802801	05/24/2004	10:00	20,100	6.57	22.2	869	13,100	0.11
B	05OS-105	BA-03S	362051096802801	02/03/2005	13:15	20,100	6.45	16.1	861	12,900	0.13
B	02OS-321	BA-03D	362051096802802	02/26/2002	15:00	8,160	6.81	16.3	819	7,210	0.02
B	02OS-402	BA-03D	362051096802802	06/10/2002	12:00	7,200	6.70	19.2	808	6,840	0.01
B	02OS-505	BA-03D	362051096802802	11/13/2002	15:00	7,120	6.70	17.9	757	5,800	0.02
B	03OS-121	BA-03D	362051096802802	03/28/2003	10:00	6,960	6.89	9.4	714	5,580	0.02
B	03OS-213	BA-03D	362051096802802	06/09/2003	14:00	6,600	7.26	23.3	741	5,610	0.02
B	04OS-123	BA-03D	362051096802802	01/21/2004	13:30	7,700	6.74	10.4	804	6,480	0.01
B	04OS-237	BA-03D	362051096802802	05/24/2004	10:30	7,530	6.64	22.9	821	6,840	0.01
B	05OS-104	BA-03D	362051096802802	02/03/2005	11:20	7,700	6.58	14.5	791	6,590	0.01
B	02OS-423	BE-01	362053096802707	06/12/2002	9:45	7,070	8.91	19.7	79	5,530	0.08
B	04OS-144	BE-01	362053096802707	01/23/2004	16:00	10,900	-	-	-	8,710	0.03
B	02OS-303	BE-03	362052096802703	02/20/2002	15:00	22,200	5.96	19.3	36	13,100	2.3
B	02OS-411	BE-03	362052096802703	06/11/2002	11:15	14,900	5.02	26.7	17	8,420	1.4
B	03OS-144	BE-03	362052096802703	04/01/2003	11:10	8,800	5.30	15.9	19	4,670	0.56
B	02OS-408	BE-04	362051096802601	06/11/2002	10:00	31,600	-	27.5	-	19,300	1.8
B	03OS-148	BE-04	362051096802601	04/01/2003	15:15	30,200	-	29.0	-	17,800	1.3
B	04OS-242	BE-04	362051096802601	05/24/2004	17:00	26,600	5.01	27.6	12	16,100	0.97
B	02OS-409	BE-06	362050096802501	06/11/2002	10:15	9,950	-	23.9	-	5,080	0.46
B	02OS-519	BE-06	362050096802501	11/19/2002	16:00	4,700	6.41	15.0	37	2,600	0.29
B	03OS-139	BE-06	362050096802501	03/31/2003	15:00	1,180	6.06	24.3	60	613	0.09
B	02OS-305	BE-07	362050096802401	02/21/2002	12:00	39,100	6.23	11.9	178	24,000	14.2
B	02OS-414	BE-07	362050096802401	06/11/2002	14:30	33,700	-	30.1	-	20,300	10.2
B	02OS-415	BE-07	362050096802401	06/11/2002	15:30	32,700	6.20	24.7	233	19,700	15.2
B	02OS-508	BE-07	362050096802401	11/14/2002	13:30	32,300	6.41	13.5	354	19,900	3.3
B	03OS-151	BE-07	362050096802401	04/02/2003	8:45	15,500	6.45	21.7	151	8,680	8.5
B	04OS-136	BE-07	362050096802401	01/23/2004	11:45	17,300	6.27	11.8	190	9,700	7.0
B	02OS-422	BE-08	362050096802502	06/12/2002	9:30	19,900	6.68	25.0	820	16,000	0.04
B	02OS-515	BE-08	362050096802502	11/19/2002	10:30	35,600	6.50	17.5	410	24,600	0.05
B	03OS-147	BE-08	362050096802502	04/01/2003	14:30	33,200	6.32	25.9	193	20,800	0.16
B	04OS-129	BE-08	362050096802502	01/22/2004	10:45	26,900	6.77	13.3	414	18,300	0.04
B	02OS-412	BE-09	362050096802503	06/11/2002	12:00	17,500	5.98	23.9	185	10,500	0.90
B	02OS-511	BE-09	362050096802503	11/18/2002	11:00	35,900	-	18.3	89	23,200	3.8
B	03OS-146	BE-09	362050096802503	04/01/2003	14:00	26,600	5.28	25.2	32	15,600	1.8
B	04OS-128	BE-09	362050096802503	01/22/2004	10:10	28,000	5.51	11.5	28	16,600	3.8
B	02OS-413	BE-10	362050096802504	06/11/2002	13:45	18,200	4.40	22.8	0	13,300	0.51
B	02OS-507	BE-10	362050096802504	11/14/2002	11:45	34,600	4.41	15.5	0	21,400	0.80
B	03OS-129	BE-10	362050096802504	03/30/2003	11:30	27,400	4.67	16.5	3.1	16,300	0.50
B	04OS-131	BE-10	362050096802504	01/22/2004	15:00	36,100	4.79	9.2	6.4	21,500	0.74
B	02OS-420	BE-11	362050096802601	06/12/2002	9:00	32,000	6.36	22.0	232	20,200	0.47
B	02OS-506	BE-11	362050096802601	11/14/2002	10:45	24,600	-	18.3	294	15,000	0.28
B	03OS-128	BE-11	362050096802601	03/30/2003	11:00	45,200	6.44	20.2	139	28,400	1.6
B	04OS-130	BE-11	362050096802601	01/22/2004	14:30	33,600	6.50	10.0	100	20,000	3.1
B	02OS-421	BE-12	362050096802602	06/12/2002	9:15	29,400	6.65	22.3	447	20,000	0.07

Field site	Field Sample ID	Station name	Site Identification	Collection Date	Time	Specific conductance, field (µS/cm)	pH, field, (standard units)	Temperature, water (°C)	Alkalinity, water dissolved, total incremental	Dissolved solids, total (mg/L)	Barium, dissolved (mg/L as Ba)
									titration, field (mg/L as HCO3)		
B	02OS-509	BE-12	362050096802602	11/16/2002	12:10	33,300	-	17.6	-	23,300	0.17
B	03OS-145	BE-12	362050096802602	04/01/2003	13:30	47,700	6.66	27.4	129	30,700	0.30
B	04OS-127	BE-12	362050096802602	01/22/2004	9:45	24,700	6.36	9.5	53	14,500	2.3
B	02OS-307	BE-13	362049096802401	02/21/2002	16:00	27,100	6.26	12.1	181	17,400	0.23
B	02OS-416	BE-13	362049096802401	06/11/2002	16:00	20,900	6.59	22.1	824	16,600	0.10
B	02OS-512	BE-13	362049096802401	11/18/2002	15:30	20,800	7.14	17.2	888	17,400	0.03
B	03OS-127	BE-13	362049096802401	03/30/2003	9:45	21,000	6.97	16.7	1,150	18,000	0.02
B	04OS-138	BE-13	362049096802401	01/23/2004	13:00	20,100	6.87	13.3	1,210	17,500	0.02
B	02OS-410	BE-15	362050096802506	06/11/2002	10:35	9,380	6.39	23.5	142	5,500	0.17
B	02OS-518	BE-15	362050096802506	11/19/2002	15:00	9,400	7.11	21.3	174	5,610	0.08
B	03OS-140	BE-15	362050096802506	03/31/2003	16:15	6,040	6.06	19.8	84	3,250	0.15
B	02OS-417	BE-16	362049096802501	06/11/2002	16:30	18,600	6.14	22.6	325	14,500	0.03
B	02OS-513	BE-16	362049096802501	11/18/2002	17:00	16,900	6.61	15.1	786	15,900	0.02
B	03OS-125	BE-16	362049096802501	03/28/2003	16:00	16,700	6.41	10.6	582	14,800	0.02
B	04OS-137	BE-16	362049096802501	01/23/2004	12:30	14,100	6.49	12.2	337	11,000	0.02
B	02OS-418	BE-17	362048096802601	06/11/2002	17:00	16,300	7.06	34.7	1,260	16,400	0.04
B	02OS-514	BE-17	362048096802601	11/19/2002	9:45	10,900	7.41	19.0	1,090	15,000	0.02
B	03OS-126	BE-17	362048096802601	03/30/2003	9:15	15,700	7.33	18.5	1,160	15,600	0.02
B	04OS-135	BE-17	362048096802601	01/23/2004	11:00	15,400	7.31	12.3	1,090	14,700	0.02
B	02OS-407	BE-18	362052096802501	06/11/2002	9:45	16,300	6.17	23.2	275	10,100	0.58
B	02OS-521	BE-18	362052096802501	11/20/2002	9:45	19,600	6.26	14.7	290	12,700	0.16
B	03OS-149	BE-18	362052096802501	04/01/2003	15:45	9,260	6.18	19.4	104	5,120	0.26
B	04OS-140	BE-18	362052096802501	01/23/2004	14:00	11,800	6.18	13.0	153	6,690	0.53
B	03OS-150	BE-19	362052096802502	04/01/2003	16:15	10,200	6.52	20.6	203	5,700	0.84
B	03OS-143	BE-51	362053096802708	04/01/2003	10:30	4,150	6.97	17.4	182	2,870	0.02
B	04OS-143	BE-51	362053096802708	01/23/2004	16:30	2,410	6.89	13.9	100	1,590	0.01
B	03OS-135	BE-52	362052096802704	03/31/2003	12:00	22,400	6.97	18.0	363	14,500	0.07
B	03OS-136	BE-53	362052096802705	03/31/2003	12:30	34,400	4.74	28.9	7	21,100	1.1
B	04OS-142	BE-53	362052096802705	01/23/2004	15:00	46,600	4.44	15.8	0	29,800	2.1
B	03OS-130	BE-54	362052096802706	03/30/2003	16:00	9,980	5.94	14.8	67	5,460	0.67
B	03OS-134	BE-55	362051096802603	03/31/2003	11:30	40,400	6.71	18.8	403	27,500	0.10
B	04OS-141	BE-55	362051096802603	01/23/2004	14:30	36,300	6.45	13.2	309	24,100	0.13
B	04OS-245	BE-55	362051096802603	05/25/2004	10:30	37,900	6.40	22.7	653	26,600	0.07
B	03OS-133	BE-56	362051096802604	03/31/2003	10:45	25,400	6.30	24.2	130	15,200	1.6
B	04OS-244	BE-56	362051096802604	05/25/2004	10:00	38,200	6.57	24.9	245	24,900	0.43
B	03OS-132	BE-57	362051096802605	03/31/2003	10:00	7,400	7.07	15.9	135	4,050	0.13
B	03OS-131	BE-58	362050096802604	03/30/2003	17:00	4,930	6.69	13.1	51	2,530	0.07
B	04OS-139	BE-58	362050096802604	01/23/2004	13:30	9,650	7.10	16.2	123	5,720	0.04
B	03OS-123	BE-59	362049096802601	03/28/2003	13:15	24,300	6.90	9.8	330	14,400	0.65
B	04OS-133	BE-59	362049096802601	01/23/2004	10:00	10,100	7.07	11.2	171	5,560	0.30
B	03OS-122	BE-60	362049096802602	03/28/2003	12:45	11,700	5.41	10.2	25	6,300	0.81
B	04OS-132	BE-60	362049096802602	01/23/2004	9:45	20,200	5.73	11.5	26	12,900	3.8
B	03OS-124	BE-61	362049096802502	03/28/2003	15:30	15,900	6.64	10.3	430	10,600	0.06
B	04OS-134	BE-61	362049096802502	01/23/2004	10:30	10,600	6.80	11.4	309	7,060	0.03
B	03OS-152	BE-62	362049096802402	04/02/2003	9:45	25,600	6.66	21.9	480	15,700	0.09

Field site	Field Sample ID	Station name	Site Identification	Collection Date	Time	Specific conductance, field (µS/cm)	pH, field, (standard units)	Temperature, whole water (°C)	Alkalinity, water dissolved, total incremental titration, field (mg/L as HCO3)	Dissolved solids, total (mg/L)	Barium, dissolved (mg/L as Ba)
B	04OS-145	BE-62	362049096802402	01/25/2004	11:30	20,700	-	19.7	-	13,600	0.09
B	04OS-248	BE-71	362052096082707	05/27/2004	9:45	12,200	6.63	24.8	945	10,400	0.06
B	05OS-109	BE-71	362052096082707	02/04/2005	12:45	13,300	6.60	16.8	949	11,600	0.01
B	04OS-249	BE-72	362050096082507	05/27/2004	10:15	13,400	6.54	22.1	248	10,300	0.02
B	05OS-108	BE-72	362050096082507	02/04/2005	11:10	12,900	6.64	14.0	1,010	11,400	0.01
B	04OS-247	BE-73	362053096082801	05/27/2004	9:10	16,200	6.73	25.2	1,130	12,900	0.03
B	05OS-111	BE-73	362053096082801	02/04/2005	15:45	17,100	6.89	16.4	1,280	14,300	0.02
B	04OS-250	BE-74	362051096082606	05/27/2004	11:00	20,500	6.47	22.1	519	15,500	0.08
B	05OS-110	BE-74	362051096082606	02/04/2005	14:50	25,100	6.49	15.2	978	18,600	0.01
B	02OS-304	BR-01 (prior to completion)	362048096803901	02/21/2002	9:00	2,320	8.30	14.0	253	1,420	0.08
B	02OS-308	BR-01 (prior to completion)	362048096803901	02/22/2002	10:00	3,860	8.77	15.1	253	2,280	0.01
B	02OS-315	BR-01 (prior to completion)	362048096803901	02/25/2002	12:00	3,410	-	14.0	-	1,800	0.01
B	04OS-246	BR-01S	362048096803901	05/25/2004	9:30	18,400	-	25.1	-	10,900	3.3
B	02OS-406	BR-01D	362048096803902	06/10/2002	17:30	15,400	6.44	18.0	252	9,380	1.7
B	02OS-503	BR-01D	362048096803902	11/13/2002	11:15	3,120	6.88	16.3	511	2,220	0.24
B	03OS-137	BR-01D	362048096803902	03/31/2003	12:00	1,550	6.79	26.2	551	1,270	0.04
B	03OS-215	BR-01D	362048096803902	06/09/2003	16:15	1,420	6.96	26.2	562	1,270	0.04
B	04OS-241	BR-01D	362048096803902	05/24/2004	15:40	1,460	6.67	22.5	558	1,260	0.04
B	05OS-103	BR-01D	362048096803902	02/03/2005	9:00	1,380	6.65	9.8	558	1,250	0.03
B	02OS-312	BR-02 (prior to completion)	362048096803101	02/23/2002	12:00	13,200	7.82	19.0	263	7,260	4.6
B	02OS-313	BR-02 (prior to completion)	362048096803101	02/24/2002	11:15	13,800	7.62	22.3	351	7,720	0.41
B	02OS-335	BR-02D	362048096803102	03/04/2002	15:30	5,520	7.59	16.7	218	3,070	0.60
B	02OS-404	BR-02D	362048096803102	06/10/2002	14:45	6,300	6.94	19.6	493	5,100	0.42
B	02OS-502	BR-02D	362048096803102	11/13/2002	9:15	6,310	6.86	17.2	573	4,220	0.06
B	03OS-138	BR-02D	362048096803102	03/31/2003	11:00	8,300	6.71	28.3	594	5,520	0.14
B	03OS-214	BR-02D	362048096803102	06/09/2003	15:45	8,600	6.90	22.5	660	6,050	0.04
B	04OS-243	BR-02D	362048096803102	05/25/2004	9:00	8,690	6.60	20.8	683	6,590	0.03
B	05OS-101	BR-02D	362048096803102	02/02/2005	10:15	7,990	6.75	8.7	737	5,940	0.04
Site B; surface waters and reinjection tank produced water											
B	01OS-113	small pool, near abandoned tank battery	-	03/13/2001	9:45	10,900	7.13	12.9	143	6,020	4.4
B	02OS-301	small pool, near abandoned tank battery	-	02/20/2002	9:30	21,800	8.30	6.3	59	12,000	3.75
B	01OS-114	large pool, nr BA-01 well	-	03/13/2001	10:15	4,780	7.26	11.4	134	2,520	0.56
B	01OS-201	EPA-1 "hand dug" hole	-	12/11/2001	-	117,000	4.31	12.1	0	82,000	113
B	02OS-311	creek, near BA-01 well	-	02/22/2002	16:30	8,440	6.74	11.2	273	4,830	0.27
B	01OS-202	injection pit	-	12/11/2001	-	23,600	6.46	9.1	53	13,000	19.3
B	02OS-316	injection pit	-	02/25/2002	14:00	67,000	8.52	10.5	57	42,100	88.4
B	02OS-317	main pit	-	02/25/2002	16:15	57,600	6.62	6.8	146	35,300	100
B	02OS-510	main pit	-	11/18/2002	10:15	59,000	6.71	15.4	82	39,200	101
B	02OS-314	reinjection tank, produced water	-	02/24/2002	14:45	164,000	6.50	24.4	139	134,000	460

Index B. Analytic data for water samples

determined; column labeled q followed by n is below lower detection limit; n, value is near the lower detection limit]

		inorganic	inorganic	inorganic	inorganic	inorganic	inorganic		inorganic	inorganic	inorganic	inorganic
Field Sample ID	Station name	Bromide, dissolved (mg/L as Br)	Calcium, dissolved (mg/L as Ca)	Chloride, dissolved (mg/L as Cl)	Magnesium, dissolved (mg/L as Mg)	Manganese, dissolved (mg/L as Mn)	Potassium, dissolved (mg/L as K)	qSiO2 (mg/L as SiO2)	Silica, dissolved (mg/L as SiO2)	Sodium, dissolved (mg/L as Na)	Strontium, dissolved (mg/L as Sr)	Sulfate, dissolved (mg/L as SO4)
Local domestic ground water wells												
01OS-101	Bolin well	0.86	57.1	216	25.1	0.002	0.96		26	69.2	0.24	45.1
01OS-102	Hurn well	0.13	36.3	23.9	18.5	0.35	0.97		14	36.0	0.33	18.3
Local oil/gas wells												
01OS-103	Reynolds #4	346	11,200	110,000	1,980	6.0	688	<	16	51,700	500	0.3
01OS-104	ECC #10	285	5,400	82,100	2,350	2.8	105	<	16	42,400	905	0.2
01OS-105	ECC #3	364	11,900	113,000	2,070	10.0	646	<	16	55,000	514	0.4
01OS-106	Lebow #8	346	9,960	99,500	1,830	0.93	266	<	16	48,600	504	0.7
01OS-107	Millard #3	335	6,250	75,400	1,530	1.3	110	<	16	38,100	521	0.2
01OS-108	ECC #5	320	9,980	101,000	1,910	7.5	482	<	21	47,000	505	0.4
01OS-109	Ungermann #1	338	6,940	78,500	1,510	0.95	146	<	21	39,200	502	0.2
01OS-110	TEC T1-19 (coal-bed methane)	257	5,870	70,100	1,830	5.4	186	<	16	34,100	565	80.7
Skiatook Lake												
01OS-111	Skiatook Lake, near dam	0.11	20.0	24.6	4.97	0.003	2.2		2.8	13.5	0.19	10.0
02OS-309	Skiatook Lake, site B	0.20	23.1	39.7	6.21	0.088	2.6		1.5	20.9	0.27	11.6
02OS-310	Skiatook Lake, site B	0.14	21.7	29.1	5.69	0.032	2.5		1.4	16.0	0.21	11.3
02OS-338	Skiatook Lake, site B	0.06	17.2	14.7	7.49	0.0001	2.0		6.6	12.9	0.08	58.2
02OS-339	Skiatook Lake, site A	0.11	20.6	25.5	6.52	0.0001	2.3		2.8	15.6	0.16	27.8
02OS-520	Skiatook Lake, site B	0.15	23.4	31.4	6.17	0.11	2.6		2.1	17.3	0.22	11.1
04OS-212	Skiatook Lake, site A	0.13	21.4	29.2	5.77	0.0057	2.6		1.5	16.5	0.20	12.2
Site A; monitoring wells												
02OS-430	AA-01D	54.5	3,360	16,100	2,520	5.2	26		18	2,180	8.28	696
02OS-523	AA-01D	50.3	3,040	15,100	2,310	22.0	23		36	2,550	10.8	4.7
03OS-108	AA-01D	47.9	2,890	14,900	2,430	22.0	19		27	2,260	9.53	2.8
03OS-205	AA-01D	48.0	2,840	15,100	2,430	22.0	18		26	2,280	9.29	3.2
04OS-105	AA-01D	43.8	2,690	13,900	2,320	17.0	20		-	2,190	10.0	179
04OS-203	AA-01D	49.5	3,080	15,600	2,530	22.0	18		21	2,230	8.93	469
05OS-134	AA-01D	42.9	2,310	13,500	2,000	52.0	14		19	2,590	10.5	1,430
02OS-337	AA-02S	5.73	288	1,860	175	0.41	11		22	947	3.61	512
02OS-426	AA-02S	23.2	547	7,030	273	1.70	13		14	3,400	8.22	137
02OS-522	AA-02S	21.1	541	6,580	277	2.20	13		15	3,410	8.13	221
03OS-106	AA-02S	21.2	541	6,590	265	2.20	12		18	3,360	8.48	242
03OS-207	AA-02S	21.1	514	6,710	257	1.80	12		15	3,480	8.47	122
04OS-104	AA-02S	20.8	911	6,470	485	1.80	14	<	-	2,700	7.78	256
04OS-230	AA-02S	20.4	518	6,680	253	1.80	12		19	3,380	8.60	183
05OS-139	AA-02S	20.6	538	6,540	267	1.80	12		17	3,400	8.47	241
02OS-336	AA-02D	3.05	176	813	115	0.12	8.1		27	656	2.57	740
02OS-427	AA-02D	1.43	171	436	103	0.49	5.7		24	525	2.78	668
02OS-527	AA-02D	0.34	161	75.9	110	0.20	4.4		28	230	2.98	535
03OS-107	AA-02D	0.38	160	87.5	118	0.16	4.4		29	212	3.08	436
03OS-208	AA-02D	0.92	176	276	129	0.18	4.8		31	276	3.62	395
04OS-103	AA-02D	0.36	165	75.0	116	0.14	4.5		21	187	3.21	554

Field Sample ID	Station name	Bromide, dissolved (mg/L as Br)	Calcium, dissolved (mg/L as Ca)	Chloride, dissolved (mg/L as Cl)	Magnesium, dissolved (mg/L as Mg)	Manganese, dissolved (mg/L as Mn)	Potassium, dissolved (mg/L as K)	qSiO2 (mg/L as SiO2)	Silica dissolved (mg/L as SiO2)	Sodium, dissolved (mg/L as Na)	Strontium, dissolved (mg/L as Sr)	Sulfate, dissolved (mg/L as SO4)
04OS-231	AA-02D	0.70	169	208	115	0.12	4.7		17	258	3.37	520
05OS-140	AA-02D	0.44	184	123	127	0.11	4.5		28	160	3.43	592
02OS-428	AA-03S	6.52	96.1	1,860	40.7	2.20	3.0		18	1,110	3.29	5.7
03OS-103	AA-03S	13.1	295	4,160	174	3.50	5.6		19	2,040	5.77	65.7
03OS-203	AA-03S	6.91	128	2,220	66.6	1.20	3.5		20	1,210	3.43	49.3
04OS-205	AA-03S	1.70	18.0	502	6.02	0.11	0.91		14	333	1.01	31.9
05OS-142	AA-03S	1.78	19.3	548	6.32	0.027	0.68		11	354	1.17	31.0
02OS-429	AA-03D	18.8	404	5,630	166	14.0	23		23	3,250	5.04	23.4
02OS-524	AA-03D	21.6	519	6,860	249	18.0	19		33	3,660	7.21	79.6
03OS-104	AA-03D	21.5	573	6,830	259	13.0	19		24	3,540	6.89	375
03OS-204	AA-03D	13.3	289	4,310	134	5.50	11		23	2,380	4.78	77.1
04OS-116	AA-03D	19.1	478	6,030	215	10.0	16		22	3,210	6.09	126
04OS-211	AA-03D	6.88	120	2,190	54.4	2.00	6.4		16	1,310	2.05	34.8
05OS-141	AA-03D	8.45	180	2,740	77.9	2.90	7.1		16	1,510	2.84	38.8
02OS-424	AA-04S	11.5	198	3,240	62.5	12.0	4.9		25	1,670	7.46	5.9
02OS-526	AA-04S	11.4	217	3,370	78.2	14.0	4.5		28	1,800	7.88	5.5
03OS-101	AA-04S	11.0	222	3,230	83.0	12.0	4.0		27	1,660	7.70	10.5
03OS-201	AA-04S	10.5	198	3,090	70.7	14.0	4.2		27	1,650	8.04	1.7
04OS-109	AA-04S	10.8	200	3,240	73.4	13.0	4.1		-	1,720	7.48	7.9
04OS-201	AA-04S	10.3	190	2,990	69.2	13.0	3.7		26	1,580	7.54	4.7
05OS-112	AA-04S	9.85	176	2,880	66.0	11.0	3.2		23	1,510	6.51	1.7
02OS-425	AA-04D	11.5	548	3,410	238	4.30	25		19	1,150	4.80	56.8
02OS-525	AA-04D	11.9	196	3,340	68.4	14.0	4.4		28	1,770	7.85	2.6
03OS-102	AA-04D	11.1	311	3,310	123	11.0	6.4		27	1,560	7.52	9.8
03OS-202	AA-04D	11.4	334	3,320	136	12.0	6.5		28	1,560	7.39	8.5
05OS-113	AA-04D	9.91	188	2,900	71.6	11.0	3.8		24	1,540	6.33	3.0
04OS-117	AA-05S	20.9	816	6,880	440	15.0	7.1		27	2,800	10.1	23.6
04OS-226	AA-05S	19.9	717	6,630	405	12.0	5.0		31	2,810	10.1	20.6
05OS-118	AA-05S	19.0	613	6,200	342	14.0	4.5		29	2,710	8.98	18.0
04OS-118	AA-05D	0.25	133	52.6	114	0.041	4.8		19	69	1.37	387
04OS-216	AA-05D	0.24	130	55.8	109	0.057	4.3		19	80.1	1.35	399
05OS-117	AA-05D	0.24	123	58.8	97.9	0.20	4.5		18	123	1.69	434
04OS-119	AA-06S	57.8	2,590	18,100	1,980	1.60	22	<	11	5,610	42.3	401
04OS-233	AA-06S	55.0	2,530	18,300	1,980	1.20	18		13	5,680	42.4	368
05OS-136	AA-06S	57.9	2,580	18,700	2,000	1.10	18		18	5,780	46.6	341
04OS-120	AA-06D	29.2	1210	9,310	881	0.52	25		20	3,490	25.1	776
04OS-234	AA-06D	58.7	2,550	18,300	2,000	2.30	26		15	5,710	52.5	379
05OS-135	AA-06D	49.7	2,310	16,200	1,850	1.70	19		19	4,690	44.5	419
04OS-121	AA-07S	37.6	2,670	12,000	1,640	12.0	29		26	2,580	6.90	1,440
04OS-222	AA-07S	20.7	1,170	6,990	751	36.0	18		41	2,100	10.7	620
05OS-138	AA-07S	21.3	1,240	7,170	773	24.0	11		37	1,950	8.88	422
04OS-153	AA-07D	11.9	359	3,830	222	0.31	17		24	2,370	8.11	1,360
04OS-223	AA-07D	21.5	926	6,950	665	15.0	22		30	2,860	16.3	857
05OS-137	AA-07D	28.9	1,880	9,410	1,240	18.0	22		25	2,220	13.8	765
04OS-157	AA-08S	14.6	500	4,590	605	1.10	25		19	1,870	6.57	873

Field Sample ID	Station name	Bromide, dissolved (mg/L as Br)	Calcium, dissolved (mg/L as Ca)	Chloride, dissolved (mg/L as Cl)	Magnesium, dissolved (mg/L as Mg)	Manganese, dissolved (mg/L as Mn)	Potassium, dissolved (mg/L as K)	qSiO2 (mg/L as SiO2)	Silica dissolved (mg/L as SiO2)	Sodium, dissolved (mg/L as Na)	Strontium, dissolved (mg/L as Sr)	Sulfate, dissolved (mg/L as SO4)
04OS-221	AA-08S	21.8	738	7,030	883	6.60	23		26	2,780	10.3	988
05OS-123	AA-08S	26.3	926	8,240	1,170	9.60	27		28	2,650	8.37	1,060
04OS-156	AA-08D	0.25	275	70.6	219	0.19	6.1		23	192	3.21	1,470
04OS-218	AA-08D	0.25	277	68.9	201	0.36	5.7		25	224	3.10	1,460
05OS-124	AA-08D	0.20	271	53.0	205	0.22	4.0		26	92.4	2.85	1,310
04OS-155	AA-09S	1.22	282	379	307	0.63	12		22	278	2.95	1,260
04OS-232	AA-09S	4.63	349	1,460	395	1.10	12		15	742	3.08	1,330
05OS-122	AA-09S	4.99	318	1,610	364	0.86	12		27	919	2.64	1,110
04OS-154	AA-09D	0.29	271	50.6	226	0.24	4.8		27	80	2.55	1,280
04OS-217	AA-09D	0.19	275	50.2	229	0.22	3.9		26	76.6	2.51	1,280
05OS-121	AA-09D	0.18	264	51.3	219	0.24	4.0		23	78.3	2.48	1,270
04OS-152	AA-10S	2.06	30.4	600	11.6	2.80	4.6		16	464	1.10	62.1
04OS-224	AA-10S	3.03	33.0	930	12.1	4.20	1.9		13	648	1.50	23.0
05OS-127	AA-10S	3.44	32.6	1,000	10.7	4.30	1.6		18	612	1.40	19.5
04OS-151	AA-10M	4.24	376	1,360	250	2.40	8.3		24	469	3.49	582
04OS-229	AA-10M	18.9	1,450	6,410	713	0.92	11		28	1,510	10.8	94.5
05OS-126	AA-10M	20.7	1,450	6,760	655	0.49	9.9		28	1,410	11.0	60.7
04OS-158	AA-10D	0.20	184	37.5	129	0.076	5.0		19	66.8	2.41	720
04OS-215	AA-10D	0.20	181	40.1	127	0.14	4.0		23	69.2	2.45	730
05OS-125	AA-10D	0.25	184	56.1	118	0.12	3.7		29	72.4	2.28	754
04OS-161	AA-11S	25.1	1,410	8,030	634	5.40	17		21	2,620	12.6	128
04OS-225	AA-11S	19.7	901	6,110	396	7.20	12		27	2,370	10.5	95.6
05OS-131	AA-11S	17.4	752	5,470	329	4.90	9.8		30	2,070	7.65	68.9
04OS-160	AA-11M	15.8	945	4,970	445	2.70	16		21	1,660	8.67	405
04OS-228	AA-11M	2.75	256	852	111	1.30	5.5		27	438	3.73	466
05OS-132	AA-11M	8.61	524	2,780	255	2.60	8.1		29	1,030	7.62	346
04OS-159	AA-11D	18.6	1,110	5,990	500	3.30	12		23	1,920	9.68	184
04OS-213	AA-11D	0.28	114	72.4	58.3	0.24	2.8		24	87.0	1.18	269
05OS-130	AA-11D	1.96	196	611	98.3	0.65	3.2		28	252	1.99	287
04OS-165	AA-12S	12.1	596	3,830	483	0.80	12		21	1,230	6.72	418
04OS-227	AA-12S	20.2	1,050	6,510	880	1.00	15		22	1,910	11.7	542
05OS-114	AA-12S	0.34	57.8	103	26.6	0.084	2.5		24	170	0.57	128
04OS-164	AA-12D	0.55	301	161	171	0.11	4.9		19	118	6.42	1,240
04OS-214	AA-12D	0.24	288	72.1	160	0.092	4.5		23	97.0	6.43	1,230
05OS-115	AA-12D	0.28	287	89.2	162	0.081	4.8		20	102	6.32	1,260
04OS-163	AA-13S	0.44	78.2	133	46.9	0.12	3.7		21	140	0.92	212
04OS-220	AA-13S	0.20	105	56.9	57.0	0.29	3.9		23	223	1.37	370
05OS-119	AA-13S	0.09	69.3	23.7	28.0	0.074	3.6		25	213	0.99	159
04OS-162	AA-13D	0.44	169	123	89.4	0.16	5.4		19	123	4.43	678
04OS-219	AA-13D	0.19	168	52.7	89.0	0.17	4.3		22	140	4.47	680
05OS-120	AA-13D	0.19	190	54.7	99.1	0.14	4.5		20	117	5.58	750
03OS-155	AA-60S	0.21	7.41	40.7	2.63	0.33	2.3		14	142	0.11	141
03OS-218	AA-60S	0.71	15.5	199	5.48	3.70	2.0		16	232	0.31	39.0
04OS-108	AA-60S	2.84	58.8	782	23.5	5.80	2.6	<	11	535	1.54	130
03OS-154	AA-60D	4.27	576	1,620	292	0.52	6.5		24	103	2.69	259

Field Sample ID	Station name	Bromide, dissolved (mg/L as Br)	Calcium, dissolved (mg/L as Ca)	Chloride, dissolved (mg/L as Cl)	Magnesium, dissolved (mg/L as Mg)	Manganese, dissolved (mg/L as Mn)	Potassium, dissolved (mg/L as K)		Silica dissolved (mg/L as SiO2)	Sodium, dissolved (mg/L as Na)	Strontium, dissolved (mg/L as Sr)	Sulfate, dissolved (mg/L as SO4)
03OS-210	AA-60D	3.12	457	1,280	219	0.36	5.4		27	75.8	2.10	138
04OS-107	AA-60D	5.48	495	1,850	240	0.79	6.6	<	21	320	2.65	109
04OS-204	AA-60D	4.78	520	1,730	248	0.61	5.9		25	243	2.43	163
05OS-116	AA-60D	5.16	498	1,850	243	0.49	6.3		23	312	2.45	137
03OS-153	AA-61	34.0	1,440	10,500	1,550	33.0	7.8		5	2,640	9.70	497
03OS-209	AA-61	37.0	1,590	11,700	1,720	15.0	4.7		9	2,880	9.86	464
04OS-101	AA-61	38.1	1,690	11,600	1,730	17.0	3.1		-	2,920	9.64	583
04OS-206	AA-61	30.1	1,380	9,870	1,430	17.0	2.7		10	2,510	9.40	489
05OS-129	AA-61	37.1	1,650	11,800	1,650	19.0	2.3		19	2,780	9.70	649
04OS-202	AA-62	10.6	403	3,530	368	13.0	2.7		22	1,410	6.96	557
05OS-128	AA-62	6.94	245	2,280	222	6.80	1.3		14	901	4.26	382
02OS-434	AE-04	0.27	2.17	76.7	0.43	0.013	0.96		11	59.6	0.07	10.2
02OS-332	AE-05	0.07	0.20	3.29	0.03	0.001	0.02		10	11.8	0.004	14.2
02OS-333	AE-06	0.16	4.01	8.03	0.99	0.042	0.14		10	14.4	0.22	18.6
02OS-435	AE-06	0.11	5.84	2.19	1.11	0.23	0.75		16	3.97	0.25	6.0
04OS-111	AE-06	0.14	2.97	2.55	0.63	0.019	0.08		11	12.1	0.18	21.3
02OS-334	AE-07	0.16	0.82	20.0	0.21	0.0071	0.10		12	23.0	0.04	20.6
04OS-110	AE-07	0.12	3.58	6.91	1.00	0.026	0.09		8	12.0	0.18	20.2
02OS-326	AE-08	1.28	19.1	580	4.85	0.39	1.6		11	341	1.17	14.3
02OS-432	AE-08	0.14	3.42	27.5	1.30	0.070	1.6		37	22.9	0.18	8.0
04OS-114	AE-08	1.49	87.8	663	24.0	0.37	0.90		12	262	5.60	6.0
02OS-331	AE-10	0.06	2.91	17.4	0.56	0.086	0.72		10	23.7	0.18	28.5
02OS-328	AE-12	0.51	8.41	37.6	1.85	0.028	1.7		3	179	0.57	4.9
02OS-436	AE-12	0.26	14.4	19.3	2.76	0.16	2.4		10	154	0.93	12.3
02OS-325	AE-13	23.9	974	7,660	836	120	5.7		7	2,340	27.2	192
02OS-329	AE-13	19.9	756	6,300	629	102	2.4		10	1,980	22.7	92.3
02OS-431	AE-13	25.7	975	7,770	815	87.0	2.7		15	2,250	23.8	248
03OS-118	AE-13	22.2	1,020	7,520	865	43.0	2.3		18	2,190	21.8	168
03OS-223	AE-13	26.9	1,150	8,760	1,170	44.0	2.6		15	2,420	21.3	349
04OS-102	AE-13	22.8	999	7,330	891	46.0	1.3		-	2,050	20.2	236
04OS-207	AE-13	18.8	811	6,250	697	54.0	2.0		14	1,850	18.2	148
03OS-116	AE-14	4.86	145	1,670	47.7	0.56	3.0		10	865	5.45	32.9
02OS-330	AE-15	4.00	65.1	1,300	32.2	0.039	1.9		6	726	1.31	38.8
02OS-437	AE-15	29.0	953	9,130	477	2.80	6.8		17	4,040	16.2	115
03OS-115	AE-15	7.36	208	2,880	116	0.0046	1.4		11	1,460	3.49	79.6
03OS-113	AE-16	0.07	70.6	30.3	13.7	0.010	0.68		10	44.6	1.07	260
03OS-114	AE-17	7.92	106	2,850	33.7	0.020	3.0		22	1,690	6.05	163
03OS-112	AE-18	22.0	521	8,160	166	0.037	5.6		9	4,540	19.6	208
02OS-433	AE-19	0.41	5.63	58.8	1.43	0.14	0.46		12	50.0	0.24	16.8
03OS-109	AE-51	38.2	1,380	12,700	716	5.70	17		18	5,280	40.5	360
03OS-220	AE-51	35.0	1,270	11,900	664	3.20	9.2		18	5,340	38.9	481
03OS-219	AE-52	20.4	1,020	6,730	1,330	2.50	8.0		15	2,360	9.34	2,890
04OS-208	AE-52	22.2	1,210	7,270	1,350	0.71	6.1		20	2,160	8.65	2,780
03OS-111	AE-53	13.8	470	3,960	602	18.0	3.2		27	993	3.91	118
03OS-222	AE-53	21.5	895	6,500	1,050	14.0	4.4		17	1,520	5.12	371

Field Sample ID	Station name	Bromide, dissolved (mg/L as Br)	Calcium, dissolved (mg/L as Ca)	Chloride, dissolved (mg/L as Cl)	Magnesium, dissolved (mg/L as Mg)	Manganese, dissolved (mg/L as Mn)	Potassium, dissolved (mg/L as K)	qSiO2 (mg/L as SiO2)	Silica dissolved (mg/L as SiO2)	Sodium, dissolved (mg/L as Na)	Strontium, dissolved (mg/L as Sr)	Sulfate, dissolved (mg/L as SO4)
04OS-106 AE-53		32.7	1,460	9,970	1,630	5.00	5.5		-	2,340	6.53	698
04OS-210 AE-53		13.3	557	4,110	622	5.10	2.5		15	990	3.59	216
03OS-110 AE-54		6.52	124	1,950	46.7	1.20	4.1		18	1,480	5.58	5.82
03OS-221 AE-54		16.6	282	5,100	118	6.90	5.5		20	2,790	11.8	2.75
04OS-209 AE-54		5.11	72.8	1,530	27.4	0.48	1.9		19	870	3.33	7.25
03OS-117 AE-56		3.03	122	873	40.2	2.40	5.6		13	448	7.47	6.34
04OS-112 AE-56		2.51	110	696	35.7	0.51	5.2		8	350	8.86	0.27
02OS-324 AP-01		233	6,050	68,100	1,610	6.20	87	<	32	32,900	447	43.1
02OS-327 AR-01		0.36	45.7	70.4	16.2	0.91	1.1		25	20.3	0.32	7.36
02OS-438 AR-01		0.56	56.4	76.8	23.2	2.10	1.5		23	22.7	0.34	5.55
03OS-105 AR-01		0.33	38.2	80.3	16.4	0.85	0.94		23	18.6	0.21	4.80
03OS-206 AR-01		0.24	55.2	57.4	23.9	3.40	1.0		22	22.3	0.34	4.94
04OS-113 AR-01		0.22	69.7	40.3	30.8	6.70	0.95		20	28.3	0.46	5.28
04OS-235 AR-01		0.20	61.3	34.5	27.0	6.10	0.94		21	24.7	0.39	5.61
05OS-133 AR-01		0.23	39.4	59.2	16.2	2.70	0.60		24	16.0	0.24	6.20
Site B; monitoring wells												
02OS-322 BA-01S		25.9	763	6,110	415	8.9	30		10	2,660	23.5	867
02OS-403 BA-01S		20.1	502	4,660	174	22	4.5		16	2,080	17.7	99.0
02OS-516 BA-01S		16.3	579	3,830	846	6.7	9.2		31	2,240	14.6	3,670
03OS-141 BA-01S		11.1	269	2,810	104	6.8	1.9		13	1,370	9.78	93.6
03OS-216 BA-01S		12.3	342	3,060	246	6.3	5.6		12	1,550	9.94	696
04OS-125 BA-01S		5.40	118	1,390	51.6	1.2	1.4		10	741	3.87	97.4
04OS-239 BA-01S		8.90	365	2,220	415	6.7	6.6		10	1,170	10.1	1,730
05OS-106 BA-01S		6.14	469	1,670	1,070	1.5	18		12	1,140	9.14	4,940
02OS-323 BA-01D		13.5	558	3,190	453	5.5	36		16	1,780	17.7	2,430
02OS-405 BA-01D		7.76	411	2,050	315	1.9	17		16	1,550	16.2	2,420
02OS-517 BA-01D		7.58	388	2,040	297	1.4	14		15	1,550	15.7	2,330
03OS-142 BA-01D		7.39	415	1,990	344	2.2	16		17	1,480	16.1	2,440
03OS-217 BA-01D		5.38	461	1,500	407	3.0	17		16	1,200	15.4	2,800
04OS-126 BA-01D		3.25	465	998	432	1.6	14		14	1,010	15.6	3,110
04OS-240 BA-01D		2.88	481	940	451	2.3	14		16	899	14.9	3,140
05OS-107 BA-01D		3.13	464	963	396	2.3	14		15	901	15.9	3,190
02OS-318 BA-02S		5.44	418	1,540	735	0.39	35		16	1,220	7.39	3,910
02OS-319 BA-02D		5.39	448	1,470	850	0.10	22		13	894	7.47	3,750
02OS-401 BA-02D		4.13	438	1,150	793	0.056	19		14	831	6.99	3,700
02OS-501 BA-02D		4.81	447	1,340	766	0.068	19		14	738	7.49	3,130
03OS-119 BA-02D		4.66	433	1,280	789	0.11	20		15	748	7.33	3,180
03OS-211 BA-02D		3.82	420	994	744	0.050	19		15	783	7.11	3,460
04OS-124 BA-02D		4.12	442	1,140	798	0.039	19		11	785	7.14	3,410
04OS-238 BA-02D		3.76	431	1,060	770	0.054	18		11	786	7.12	3,570
05OS-102 BA-02D		4.36	428	1,240	754	0.055	19		12	724	7.59	3,330
02OS-320 BA-03S		6.53	401	1,800	465	0.79	31		19	1,410	10.0	2,840
02OS-504 BA-03S		26.0	672	5,910	997	7.3	23		21	1,930	11.2	943
03OS-120 BA-03S		27.0	733	6,230	1,130	8.2	20		17	1,890	12.6	906
03OS-212 BA-03S		30.4	797	7,070	1,190	10	21		16	2,070	13.4	701

Field Sample ID	Station name	Bromide, dissolved (mg/L as Br)	Calcium, dissolved (mg/L as Ca)	Chloride, dissolved (mg/L as Cl)	Magnesium, dissolved (mg/L as Mg)	Manganese, dissolved (mg/L as Mn)	Potassium, dissolved (mg/L as K)	qSiO2 (mg/L as SiO2)	Silica dissolved (mg/L as SiO2)	Sodium, dissolved (mg/L as Na)	Strontium, dissolved (mg/L as Sr)	Sulfate, dissolved (mg/L as SO4)
04OS-122	BA-03S	27.2	751	6,350	1,140	9.4	19		11	1,910	12.6	865
04OS-236	BA-03S	30.5	838	7,180	1,230	8.7	19		13	2,120	13.6	797
05OS-105	BA-03S	30.7	775	7,110	1,180	10	19		16	2,120	13.3	792
02OS-321	BA-03D	3.32	496	1,080	577	0.27	15		13	859	12.5	3,320
02OS-402	BA-03D	3.09	476	999	538	0.20	12		16	863	12.2	3,080
02OS-505	BA-03D	3.28	416	1,000	398	0.20	11		16	797	11.9	2,350
03OS-121	BA-03D	3.31	392	983	375	0.17	11		17	811	11.8	2,230
03OS-213	BA-03D	3.21	394	979	384	0.085	11		16	799	11.4	2,230
04OS-123	BA-03D	2.84	447	937	490	0.22	12		14	821	11.2	2,910
04OS-237	BA-03D	2.82	464	952	528	0.23	12		15	842	12.1	3,160
05OS-104	BA-03D	4.18	447	1,230	475	0.24	12		15	792	12.1	2,780
02OS-423	BE-01	3.61	246	1,090	508	0.49	40		3	767	3.92	2,780
04OS-144	BE-01	3.84	372	1,100	947	1.9	20		5	1,000	6.09	5,250
02OS-303	BE-03	35.3	931	7,940	371	58	11		13	3,480	35.7	164
02OS-411	BE-03	22.9	556	5,090	173	26	5.0		12	2,430	22.5	60.6
03OS-144	BE-03	11.2	271	2,810	98.5	13	2.4		10	1,360	11.0	59.4
02OS-408	BE-04	48.1	1,100	12,000	388	35	15		13	5,640	51.2	76.3
03OS-148	BE-04	40.8	1,030	10,900	347	10	11		9	5,380	51.9	58.4
04OS-242	BE-04	37.5	813	9,770	325	35	12		10	4,970	41.0	92.3
02OS-409	BE-06	11.1	197	3,150	296	26	1.5		13	1,280	4.01	95.6
02OS-519	BE-06	4.76	85.4	1,570	120	0.10	1.5		11	729	1.90	45.2
03OS-139	BE-06	0.80	17.8	308	19.0	0.17	0.34		6	175	0.45	21.8
02OS-305	BE-07	67.7	1,410	14,600	535	91	13		9	6,800	79.4	15.7
02OS-414	BE-07	57.9	1,210	12,500	478	84	13		8	5,740	64.6	43.4
02OS-415	BE-07	56.1	1,120	12,000	421	72	14		11	5,570	64.0	19.9
02OS-508	BE-07	53.2	1,040	12,000	521	71	9.8		12	5,540	53.9	97.1
03OS-151	BE-07	21.7	435	5,150	198	31	6.3		7	2,570	24.8	30.5
04OS-136	BE-07	24.2	488	5,760	270	36	5.3		8	2,810	25.9	58.5
02OS-422	BE-08	23.1	773	5,690	1,430	3.4	9.5		11	2,450	15.6	4,780
02OS-515	BE-08	51.8	1,410	12,600	1,450	4.6	8.8		36	5,530	40.7	3,010
03OS-147	BE-08	46.0	1,220	11,700	938	0.74	7.0		7	5,230	44.3	1,310
04OS-129	BE-08	34.7	1,010	8,710	1,230	0.084	9.1	<	5.3	3,900	26.8	2,880
02OS-412	BE-09	28.9	301	6,310	149	52	2.7		9	3,300	15.8	125
02OS-511	BE-09	57.9	1,350	14,100	495	92	4.9		12	6,750	64.0	86.3
03OS-146	BE-09	40.8	768	9,430	300	76	4.0		9	4,760	38.8	65.8
04OS-128	BE-09	40.2	1,000	10,000	318	33	5.6	<	5.3	4,950	43.0	64.8
02OS-413	BE-10	36.5	830	8,180	634	66	3.5		17	3,060	29.7	470
02OS-507	BE-10	54.2	1,730	13,200	899	46	4.1		12	5,020	59.8	300
03OS-129	BE-10	42.0	1,170	10,100	731	46	2.8		11	3,890	41.7	267
04OS-131	BE-10	54.4	1,540	13,100	801	21	4.5	<	5.3	5,640	52.2	253
02OS-420	BE-11	54.6	1,100	12,500	1,150	22	2.3		10	4,860	36.2	277
02OS-506	BE-11	41.1	648	9,060	977	24	1.3		12	3,610	18.4	300
03OS-128	BE-11	82.1	1,880	17,600	1,330	17	3.0		10	6,960	76.7	189
04OS-130	BE-11	50.5	1,030	12,100	441	0.96	7.8	<	5.3	6,210	42.6	69.5
02OS-421	BE-12	46.8	1,150	10,500	1,380	3.3	3.6		12	4,000	24.9	2,510

Field Sample ID	Station name	Bromide, dissolved (mg/L as Br)	Calcium, dissolved (mg/L as Ca)	Chloride, dissolved (mg/L as Cl)	Magnesium, dissolved (mg/L as Mg)	Manganese, dissolved (mg/L as Mn)	Potassium, dissolved (mg/L as K)	qSiO2 (mg/L as SiO2)	Silica dissolved (mg/L as SiO2)	Sodium, dissolved (mg/L as Na)	Strontium, dissolved (mg/L as Sr)	Sulfate, dissolved (mg/L as SO4)
02OS-509	BE-12	58.4	1,570	12,800	1,160	2.2	6.0		12	5,600	44.0	1,970
03OS-145	BE-12	79.4	2,090	18,100	984	0.049	8.8		7	8,170	81.5	987
04OS-127	BE-12	36.6	707	8,650	261	0.011	6.7	<	5.3	4,630	29.9	50.0
02OS-307	BE-13	46.4	910	9,900	948	280	5.7		5	3,520	29.2	583
02OS-416	BE-13	24.5	671	5,630	1,460	74	8.9		10	2,880	16.4	4,970
02OS-512	BE-13	20.1	557	4,820	1,690	12	7.8		13	2,940	12.7	6,480
03OS-127	BE-13	19.8	582	4,710	1,820	9.2	7.5		12	2,780	13.3	6,900
04OS-138	BE-13	18.6	578	4,580	1,780	7.9	11		14	2,660	12.8	6,680
02OS-410	BE-15	11.5	348	3,090	311	9.1	1.5		10	1,180	4.70	385
02OS-518	BE-15	12.0	305	3,060	340	0.047	1.2		11	1,250	4.14	441
03OS-140	BE-15	6.88	199	1,840	167	8.5	0.60		8	757	3.10	175
02OS-417	BE-16	13.2	492	3,130	1,370	110	4.7		12	2,140	8.35	6,910
02OS-513	BE-16	10.5	446	2,730	1,610	38	3.8		11	2,270	8.37	7,980
03OS-125	BE-16	11.2	418	2,710	1,520	59	3.2		9	2,100	8.14	7,390
04OS-137	BE-16	11.7	408	3,070	993	37	3.1		8	1,710	7.18	4,360
02OS-418	BE-17	7.31	494	2,020	1,710	16	12		14	2,030	8.34	8,870
02OS-514	BE-17	6.78	440	1,850	1,560	9.8	12		11	1,910	7.57	8,110
03OS-126	BE-17	7.10	455	1,880	1,750	7.9	11		11	1,920	8.46	8,420
04OS-135	BE-17	6.69	428	1,870	1,530	7.2	8.2		8	1,800	7.80	7,910
02OS-407	BE-18	23.4	554	5,800	253	46	7.6		11	2,780	22.1	290
02OS-521	BE-18	26.5	622	6,600	638	49	6.7		13	3,100	20.0	1,280
03OS-149	BE-18	10.4	266	2,840	195	16	3.1		8	1,350	9.60	304
04OS-140	BE-18	13.3	368	3,710	247	24	4.3		8	1,730	13.8	412
03OS-150	BE-19	11.7	352	3,250	163	18	3.2		8	1,520	14.1	117
03OS-143	BE-51	2.44	76.7	613	256	0.17	3.0		18	498	1.37	1,210
04OS-143	BE-51	1.39	37.8	356	133	0.047	1.8		18	274	0.72	667
03OS-135	BE-52	30.9	760	7,670	1,420	1.4	6.9		11	2,410	9.89	1,860
03OS-136	BE-53	56.9	1,440	13,000	937	60	4.2		17	5,330	48.8	205
04OS-142	BE-53	81.2	2,380	18,600	1,070	48	5.3		18	7,320	85.3	139
03OS-130	BE-54	12.7	335	3,220	126	5.0	3.1		8	1,560	11.0	104
03OS-134	BE-55	59.3	1,150	15,000	2,200	4.9	12		14	5,780	36.7	2,920
04OS-141	BE-55	51.9	1,010	13,500	1,620	5.7	8.1		12	5,540	35.2	2,080
04OS-245	BE-55	53.0	997	13,600	2,320	5.6	12		10	5,270	29.6	3,620
03OS-133	BE-56	32.7	629	9,100	371	11	9.1		10	4,690	26.7	184
04OS-244	BE-56	56.0	936	14,500	1,220	16	8.2		10	6,670	32.3	1,210
03OS-132	BE-57	8.57	121	2,280	149	1.8	2.3		15	1,160	2.72	166
03OS-131	BE-58	4.90	100	1,500	129	0.077	0.66		15	649	1.51	74
04OS-139	BE-58	10.5	302	2,780	427	0.079	0.89		11	1,070	3.67	992
03OS-123	BE-59	35.3	870	8,480	844	0.12	10		12	3,320	19.5	469
04OS-133	BE-59	13.1	292	3,210	254	0.29	5.5		9	1,410	6.44	185
03OS-122	BE-60	16.3	295	3,820	184	2.0	3.0		7	1,860	12.2	57.2
04OS-132	BE-60	32.6	749	7,760	307	0.65	5.1		6	3,870	32.6	62.9
03OS-124	BE-61	18.8	408	4,360	849	10	6.8		13	2,040	10.8	2,420
04OS-134	BE-61	11.3	238	2,770	544	5.3	3.6		8	1,420	5.94	1,740
03OS-152	BE-62	32.5	751	7,640	756	71	12		9	3,720	30.7	2,150

Field Sample ID	Station name	Bromide, dissolved (mg/L as Br)	Calcium, dissolved (mg/L as Ca)	Chloride, dissolved (mg/L as Cl)	Magnesium, dissolved (mg/L as Mg)	Manganese, dissolved (mg/L as Mn)	Potassium, dissolved (mg/L as K)	qSiO2 (mg/L as SiO2)	Silica dissolved (mg/L as SiO2)	Sodium, dissolved (mg/L as Na)	Strontium, dissolved (mg/L as Sr)	Sulfate, dissolved (mg/L as SO4)
04OS-145	BE-62	29.4	640	7,040	626	64	14		10	3,600	26.0	1,510
04OS-248	BE-71	6.78	636	1,980	987	3.3	39		23	1,160	14.2	4,620
05OS-109	BE-71	10.3	656	2,850	1,210	0.96	19		14	1,210	15.2	4,680
04OS-249	BE-72	8.43	587	2,370	1,110	0.33	22		12	1,270	11.9	4,670
05OS-108	BE-72	9.74	569	2,550	1,190	0.27	22		12	1,290	11.4	4,710
04OS-247	BE-73	13.3	590	3,360	1,410	12	41		19	1,540	7.95	4,820
05OS-111	BE-73	18.0	665	4,270	1,480	0.39	20		14	1,740	10.0	4,740
04OS-250	BE-74	21.6	872	5,840	1,880	1.4	40		13	1,800	20.2	4,460
05OS-110	BE-74	30.2	949	7,630	2,140	0.42	32		13	2,120	22.9	4,700
02OS-304	BR-01 (prior to completion)	1.73	76.6	446	37.9	0.20	6.2		7	334	1.89	254
02OS-308	BR-01 (prior to completion)	3.63	25.5	977	11.0	0.003	4.6		4	770	1.32	223
02OS-315	BR-01 (prior to completion)	3.11	26.5	794	10.9	0.009	4.2		5	688	1.34	252
04OS-246	BR-01S	26.8	760	6,720	430	8.5	7.9		35	2,840	13.4	41.4
02OS-406	BR-01D	24.2	680	5,570	347	4.1	7.1		31	2,360	11.3	96.6
02OS-503	BR-01D	3.22	211	753	97.1	1.1	3.0		22	371	1.94	240
03OS-137	BR-01D	0.41	142	96.7	63.6	0.33	2.3		23	113	0.89	273
03OS-215	BR-01D	0.35	143	91.1	63.0	0.25	2.3		23	109	0.86	271
04OS-241	BR-01D	0.36	142	94.7	60.7	0.33	2.2		22	109	0.92	271
05OS-103	BR-01D	0.34	141	89.9	61.0	0.12	2.1		20	104	0.84	276
02OS-312	BR-02 (prior to completion)	17.3	361	4,240	189	0.19	17		6	2,040	17.6	82.3
02OS-313	BR-02 (prior to completion)	17.3	407	4,370	240	0.33	16		6	2,000	17.9	273
02OS-335	BR-02D	6.38	162	1,630	88.3	0.48	10		14	795	6.32	127
02OS-404	BR-02D	9.26	276	2,460	171	0.32	10		15	1,270	10.9	353
02OS-502	BR-02D	4.99	250	1,350	179	0.16	9.0		13	881	8.31	911
03OS-138	BR-02D	7.89	338	2,120	245	0.16	10		17	1,180	12.6	955
03OS-214	BR-02D	7.26	389	2,020	317	0.12	11		14	1,160	13.5	1,410
04OS-243	BR-02D	7.11	424	2,050	371	0.14	11		14	1,240	14.7	1,740
05OS-101	BR-02D	6.86	369	1,920	306	0.16	11		17	1,110	12.9	1,420
Site B; surface waters and reinjection tar												
01OS-113	small pool, near abandoned tank battery	13.0	288	3,560	55.6	2.9	5.4		2	1,930	13.2	9.2
02OS-301	small pool, near abandoned tank battery	34.7	734	7,360	214	0.16	15	<	3	3,520	34.3	49.7
01OS-114	large pool, nr BA-01 well	6.25	173	1,470	57	3.1	2.4		4	641	4.7	22.5
01OS-201	EPA-1 "hand dug" hole	227	5,180	52,000	1,240	17	54	<	16	22,700	341	12.3
02OS-311	creek, near BA-01 well	10.6	345	2,550	132	14	4.3		9	1,190	9.86	271
01OS-202	injection pit	35.0	673	7,990	142	1.3	12	<	3	3,980	46.1	4.83
02OS-316	injection pit	121	2,450	26,200	444	0.45	36	<	6	12,500	172	5.1
02OS-317	main pit	100	1,970	21,600	439	3.1	35		5	10,600	141	11.2
02OS-510	main pit	101	2,080	23,800	512	0.75	46	<	9	12,300	149	9.2
02OS-314	reinjection tank, produced water	338	7,640	82,100	1,580	0.84	232	<	32	40,400	472	2.5

Index B. Analytic data for water samples

determined; column labeled q followed by an		minor/trace inorganic	minor/trace inorganic	minor/trace inorganic	minor/trace inorganic	minor/trace inorganic	minor/trace inorganic	minor/trace inorganic				
Field Sample ID	Station name	Ammonia, dissolved qNH4 (mg/L as NH4+)	Boron dissolved qB (mg/L as B)	Hydrogen sulfide, dissolved qH2S (mg/L as H2S)	Iron, dissolved qFe (mg/L as Fe)	Lithium, dissolved qLi (mg/L as Li)	Nitrate, dissolved qNO3 (mg/L as NO3)	Phosphate, dissolved qPO4 (mg/L as PO4)				
Local domestic ground water wells												
01OS-101	Bolin well	<	0.1	0.02	<	0.4	0.01	0.016	<	5.2	<	0.02
01OS-102	Hurn well		0.5	0.07	<	0.4	0.12	0.008	<	0.02	<	0.003
Local oil/gas wells												
01OS-103	Reynolds #4		38	8.8	<	0.4	50	36.5	<	0.1	<	1.5
01OS-104	ECC #10		79	2.9	<	0.4	27	8.01	<	0.1	<	1.5
01OS-105	ECC #3		45	8.7	<	0.4	31	37.9	<	0.1	<	1.5
01OS-106	Lebow #8		78	3.6	<	0.4	67	11.5	<	0.1	<	1.5
01OS-107	Millard #3		56	1.8	<	0.4	29	5.96	<	0.1	<	1.5
01OS-108	ECC #5		48	6.9	<	0.4	24	27.1	<	0.1	<	1.5
01OS-109	Ungermann #1		59	1.8	<	0.4	38	7.14	<	0.1	<	1.5
01OS-110	TEC T1-19 (coal-bed methane)		59	2.4		2.5	126	6.88	<	0.1	<	1.5
Skiatook Lake												
01OS-111	Skiatook Lake, near dam	-		0.02	-	<	0.006	0.002		0.76	<	0.002
02OS-309	Skiatook Lake, site B	-		0.03	-	<	0.006	0.002		0.65	<	0.02
02OS-310	Skiatook Lake, site B	-		0.03	-	<	0.006	0.002		0.68	<	0.02
02OS-338	Skiatook Lake, site B	-		0.01	-		0.01	0.010		0.78	<	0.02
02OS-339	Skiatook Lake, site A	-		0.02	-	<	0.006	0.004		0.38	<	0.02
02OS-520	Skiatook Lake, site B	-		0.03	-	<	0.006	0.002		0.71	<	0.03
04OS-212	Skiatook Lake, site A	-		0.02	-		0.008	0.001		0.73		-
Site A; monitoring wells												
02OS-430	AA-01D	-	<	0.05	-	<	0.5	0.16	<	1	<	2.4
02OS-523	AA-01D	-		0.09	-		25	0.17	<	0.2	<	0.25
03OS-108	AA-01D	-	<	0.05	-		64	0.13	<	0.8	<	0.8
03OS-205	AA-01D	-	<	0.10	-		81	0.13		0.8		0.8
04OS-105	AA-01D	-	<	0.10	-		69	0.12	<	1.5		-
04OS-203	AA-01D	-	<	1.00	-		41	0.12	<	2		-
05OS-134	AA-01D	-	<	0.15	-		9.2	0.095	<	1		-
02OS-337	AA-02S	-		0.19	-	<	0.13	0.064		10	<	0.2
02OS-426	AA-02S	-	<	0.01	-	<	0.13	0.076	<	1	<	1.5
02OS-522	AA-02S	-		0.03	-	<	0.13	0.11	<	0.2	<	0.25
03OS-106	AA-02S	-	<	0.02	-	<	0.13	0.11	<	0.5	<	0.5
03OS-207	AA-02S	-	<	0.05	-	<	0.25	0.067		0.6		0.6
04OS-104	AA-02S	-		0.07	-		0.50	0.12	<	0.8		-
04OS-230	AA-02S	-	<	0.15	-		0.10	0.083	<	0.8		-
05OS-139	AA-02S	-	<	0.08	-		0.55	0.098		0.68		-
02OS-336	AA-02D	-		0.29	-	<	0.05	0.061		15	<	0.1
02OS-427	AA-02D	-		0.29	-		2.9	0.050	<	0.2	<	0.6
02OS-527	AA-02D	-		0.32	-		2.2	0.043	<	0.04	<	0.05
03OS-107	AA-02D	-		0.34	-		0.04	0.036	<	0.04		0.08
03OS-208	AA-02D	-		0.40	-	<	0.05	0.034		0.04	<	0.04
04OS-103	AA-02D	-		0.33	-		2.7	0.039	<	0.06		-

Field Sample ID	Station name	Ammonia, dissolved	Boron dissolved	Hydrogen sulfide, dissolved	Iron, dissolved	Lithium, dissolved	Nitrate, dissolved	Phosphate, dissolved			
		qNH4 (mg/L as NH4+)	qB (mg/L as B)	qH2S (mg/L as H2S)	qFe (mg/L as Fe)	qLi (mg/L as Li)	qNO3 (mg/L as NO3)	qPO4 (mg/L as PO4)			
04OS-231	AA-02D	-	0.30	<	0.2	0.77	0.046	<	0.06	-	
05OS-140	AA-02D	-	0.32	-	-	1.4	0.032	<	0.01	-	
02OS-428	AA-03S	-	0.16	-	-	6.8	0.039	<	0.2	<	0.3
03OS-103	AA-03S	-	0.07	-	-	0.14	0.050	<	0.4	<	0.4
03OS-203	AA-03S	-	0.14	-	<	0.13	0.040	-	0.58	<	0.3
04OS-205	AA-03S	-	0.11	-	<	0.02	0.019	<	0.1	-	-
05OS-142	AA-03S	-	0.08	-	-	0.09	0.015	<	0.05	-	-
02OS-429	AA-03D	-	0.12	-	-	4.6	0.13	<	0.2	<	0.6
02OS-524	AA-03D	-	0.10	-	-	7.0	0.13	<	0.2	<	0.25
03OS-104	AA-03D	-	0.13	-	-	6.9	0.098	<	0.8	<	0.8
03OS-204	AA-03D	-	0.07	-	-	0.19	0.090	-	0.5	-	0.5
04OS-116	AA-03D	-	0.11	-	-	3.2	0.097	<	0.6	-	-
04OS-211	AA-03D	-	0.07	-	-	0.05	0.039	-	0.37	-	-
05OS-141	AA-03D	-	0.09	-	-	0.17	0.043	-	0.14	-	-
02OS-424	AA-04S	-	0.07	-	<	0.13	0.047	-	1.8	<	0.5
02OS-526	AA-04S	-	0.09	-	<	0.13	0.064	-	1.7	<	0.05
03OS-101	AA-04S	-	0.08	-	<	0.13	0.052	-	1.4	<	0.2
03OS-201	AA-04S	-	0.09	-	<	0.13	0.047	-	4.6	<	0.2
04OS-109	AA-04S	-	0.09	-	-	0.23	0.053	-	2.8	-	-
04OS-201	AA-04S	-	<	0.10	-	<	0.1	0.046	4.5	-	-
05OS-112	AA-04S	-	0.09	-	<	0.05	0.043	-	1.2	-	-
02OS-425	AA-04D	-	0.12	-	<	0.13	0.088	<	0.5	<	0.5
02OS-525	AA-04D	-	0.10	-	<	0.13	0.055	-	1.4	<	0.05
03OS-102	AA-04D	-	0.07	-	<	0.13	0.058	-	0.3	<	0.2
03OS-202	AA-04D	-	0.08	-	-	1.5	0.057	-	3.2	-	0.2
05OS-113	AA-04D	-	0.08	-	-	0.13	0.046	-	1.4	-	-
04OS-117	AA-05S	-	<	0.04	-	0.71	0.10	-	1.0	-	-
04OS-226	AA-05S	-	<	0.15	-	<	0.08	0.085	1.4	-	-
05OS-118	AA-05S	-	<	0.10	-	<	0.13	0.078	1.3	-	-
04OS-118	AA-05D	-	0.17	-	<	0.025	0.038	-	0.71	-	-
04OS-216	AA-05D	-	0.17	-	<	0.015	0.042	-	0.49	-	-
05OS-117	AA-05D	-	0.16	-	-	0.03	0.048	-	0.03	-	-
04OS-119	AA-06S	-	<	0.15	-	0.87	0.20	-	3.3	-	-
04OS-233	AA-06S	-	<	0.80	-	<	0.3	0.19	<	3	-
05OS-136	AA-06S	-	<	0.30	-	1.7	0.19	-	1.1	-	-
04OS-120	AA-06D	-	0.38	-	-	0.41	0.18	<	1	-	-
04OS-234	AA-06D	-	<	0.80	-	2.5	0.23	<	2	-	-
05OS-135	AA-06D	-	<	0.30	-	2.4	0.20	<	1	-	-
04OS-121	AA-07S	-	0.20	-	-	2.6	0.43	-	2.8	-	-
04OS-222	AA-07S	-	<	0.30	-	4.4	0.29	<	0.8	-	-
05OS-138	AA-07S	-	<	0.08	-	2.3	0.23	<	0.4	-	-
04OS-153	AA-07D	-	0.73	-	-	0.15	0.26	<	0.4	-	-
04OS-223	AA-07D	-	<	0.30	-	0.30	0.34	<	0.6	-	-
05OS-137	AA-07D	-	<	0.15	-	1.12	0.31	<	0.5	-	-
04OS-157	AA-08S	-	0.27	-	<	0.13	0.27	<	0.5	-	-

Field Sample ID	Station name	Ammonia, dissolved	Boron dissolved	Hydrogen sulfide, dissolved	Iron, dissolved	Lithium, dissolved	Nitrate, dissolved	Phosphate, dissolved			
		qNH4 (mg/L as NH4+)	qB (mg/L as B)	qH2S (mg/L as H2S)	qFe (mg/L as Fe)	qLi (mg/L as Li)	qNO3 (mg/L as NO3)	qPO4 (mg/L as PO4)			
04OS-221	AA-08S	-	<	0.30	<	0.2	4.7	0.26	<	1	-
05OS-123	AA-08S	-		0.10		-	9.9	0.25	<	0.4	-
04OS-156	AA-08D	-		0.42		-	<	0.05	0.035	0.32	-
04OS-218	AA-08D	-		0.36		-		0.55	0.038	<	0.1
05OS-124	AA-08D	-		0.33		-		0.74	0.025	<	0.02
04OS-155	AA-09S	-		0.28		-		0.06	0.092	<	0.16
04OS-232	AA-09S	-	<	0.20	<	0.2		2.5	0.14	<	0.2
05OS-122	AA-09S	-		0.21		-		1.1	0.17	<	0.1
04OS-154	AA-09D	-		0.32		-	<	0.03	0.027	<	0.04
04OS-217	AA-09D	-		0.29		-	<	0.03	0.025	<	0.06
05OS-121	AA-09D	-		0.31		-		0.99	0.025	<	0.02
04OS-152	AA-10S	-		0.12		-		0.03	0.013		2.7
04OS-224	AA-10S	-		0.16		-	<	0.015	0.005		0.14
05OS-127	AA-10S	-		0.13		-		0.06	0.005		0.14
04OS-151	AA-10M	-		0.23		-		0.07	0.040		0.33
04OS-229	AA-10M	-	<	0.15		0.3		2.4	0.088	<	0.8
05OS-126	AA-10M	-		0.16		-		4.7	0.091	<	0.3
04OS-158	AA-10D	-		0.49		-	<	0.025	0.021		0.02
04OS-215	AA-10D	-		0.49		-		0.04	0.021	<	0.04
05OS-125	AA-10D	-		0.46		-		0.49	0.023	<	0.02
04OS-161	AA-11S	-		0.07		-	<	0.25	0.16		1.7
04OS-225	AA-11S	-	<	0.15	<	0.2		10	0.13	<	0.8
05OS-131	AA-11S	-		0.07		-		6.3	0.11	<	0.25
04OS-160	AA-11M	-		0.26		-	<	0.13	0.12		0.7
04OS-228	AA-11M	-		0.40		1.7		0.21	0.041	<	0.1
05OS-132	AA-11M	-		0.28		-		1.1	0.067	<	0.15
04OS-159	AA-11D	-		0.15		-	<	0.13	0.12	<	0.8
04OS-213	AA-11D	-		0.32		-	<	0.015	0.014	<	0.025
05OS-130	AA-11D	-		0.30		-		1.0	0.024		0.08
04OS-165	AA-12S	-		0.14		-	<	0.13	0.11		1.9
04OS-227	AA-12S	-	<	0.15	<	0.2		2.4	0.16	<	0.8
05OS-114	AA-12S	-		0.12		-		0.17	0.020	<	0.01
04OS-164	AA-12D	-		0.94		-	<	0.05	0.024	<	0.16
04OS-214	AA-12D	-		0.98		-		0.19	0.022	<	0.04
05OS-115	AA-12D	-		0.94		-	<	0.03	0.023		1.2
04OS-163	AA-13S	-		0.15		-	<	0.025	0.028		3.0
04OS-220	AA-13S	-		0.21		1.1		0.62	0.035	<	0.04
05OS-119	AA-13S	-		0.19		-	<	0.03	0.036	<	0.01
04OS-162	AA-13D	-		0.71		-	<	0.025	0.020		0.14
04OS-219	AA-13D	-		0.68	<	0.2		0.35	0.024	<	0.06
05OS-120	AA-13D	-		0.80		-		0.03	0.021	<	0.03
03OS-155	AA-60S	-		0.01		-	<	0.01	0.020		0.64
03OS-218	AA-60S	-		0.03		-	<	0.01	0.036		0.09
04OS-108	AA-60S	-		0.02		-		0.42	0.021	<	0.1
03OS-154	AA-60D	-		0.20		-		1.7	0.15	<	0.2

Field Sample ID	Station name	Ammonia, dissolved	Boron dissolved	Hydrogen sulfide, dissolved	Iron, dissolved	Lithium, dissolved	Nitrate, dissolved	Phosphate, dissolved				
		qNH4 (mg/L as NH4+)	qB (mg/L as B)	qH2S (mg/L as H2S)	qFe (mg/L as Fe)	qLi (mg/L as Li)	qNO3 (mg/L as NO3)	qPO4 (mg/L as PO4)				
03OS-210	AA-60D	-	0.19	-	3.1	0.12	0.2	<	0.2			
04OS-107	AA-60D	-	0.18	-	5.2	0.12	<	0.2	-			
04OS-204	AA-60D	-	0.13	-	3.0	0.14	<	0.2	-			
05OS-116	AA-60D	-	0.16	-	<	0.05	0.13	0.11	-			
03OS-153	AA-61	-	<	0.05	-	5.7	0.064	<	1	<	1	
03OS-209	AA-61	-	<	0.05	-	9.5	0.036	1	<	1		
04OS-101	AA-61	-	<	0.05	-	7.2	0.029	<	1.5	-		
04OS-206	AA-61	-	<	0.50	-	8.5	0.020	<	1	-		
05OS-129	AA-61	-	<	0.10	-	33	0.033	<	1	-		
04OS-202	AA-62	-	<	0.25	-	<	0.25	0.037	5.8	-		
05OS-128	AA-62	-	<	0.02	-	0.29	0.021	4.2	-			
02OS-434	AE-04	-	0.04	-	0.10	0.002	1.2	<	0.03			
02OS-332	AE-05	-	0.02	-	0.06	0.001	1.1	<	0.02			
02OS-333	AE-06	-	0.02	-	0.012	0.001	14	<	0.02			
02OS-435	AE-06	-	0.03	-	0.26	0.002	0.32	<	0.03			
04OS-111	AE-06	-	0.01	-	0.014	0.001	0.27	-				
02OS-334	AE-07	-	0.01	-	0.16	0.002	1.2	<	0.02			
04OS-110	AE-07	-	0.01	-	0.03	0.001	0.26	-				
02OS-326	AE-08	-	0.14	-	<	0.025	0.048	0.08	<	0.02		
02OS-432	AE-08	-	0.04	-	4.0	0.015	0.60	<	0.03			
04OS-114	AE-08	-	0.03	-	0.12	0.055	<	0.08	-			
02OS-331	AE-10	-	0.02	-	0.013	0.025	0.25	<	0.02			
02OS-328	AE-12	-	0.34	-	0.04	0.032	3.1	<	0.02			
02OS-436	AE-12	-	0.49	-	1.5	0.058	<	0.02	<	0.03		
02OS-325	AE-13	-	0.02	-	<	0.25	0.039	6.9	<	0.2		
02OS-329	AE-13	-	<	0.03	-	1.9	0.024	9.7	<	0.1		
02OS-431	AE-13	-	<	0.03	-	4.8	0.025	<	1	<	1.1	
03OS-118	AE-13	-	0.05	-	<	0.25	0.017	9.8	<	0.8		
03OS-223	AE-13	-	<	0.05	-	<	0.25	0.029	1	1		
04OS-102	AE-13	-	<	0.05	-	0.60	0.011	<	0.8	-		
04OS-207	AE-13	-	<	0.25	-	0.79	0.017	<	0.8	-		
03OS-116	AE-14	-	0.03	-	<	0.13	0.009	9.1	<	0.1		
02OS-330	AE-15	-	0.01	-	<	0.05	0.013	5.3	<	0.02		
02OS-437	AE-15	-	<	0.02	-	<	0.25	0.069	11	<	1.4	
03OS-115	AE-15	-	<	0.02	-	<	0.13	0.017	19	<	0.2	
03OS-113	AE-16	-	0.01	-	<	0.025	0.001	0.18	<	0.02		
03OS-114	AE-17	-	0.28	-	<	0.13	0.070	<	0.2	<	0.2	
03OS-112	AE-18	-	<	0.04	-	<	0.25	0.005	6.8	<	0.8	
02OS-433	AE-19	-	0.07	-	0.11	0.006	0.38	<	0.03			
03OS-109	AE-51	-	<	0.04	-	<	0.25	0.024	8.7	<	1	
03OS-220	AE-51	-	<	0.05	-	<	0.25	0.037	9.6	<	1	
03OS-219	AE-52	-	0.09	-	<	0.25	0.048	1.3	<	1		
04OS-208	AE-52	-	<	0.50	-	<	0.5	0.053	2.2			
03OS-111	AE-53	-	<	0.02	-	<	0.13	0.011	<	0.4	<	0.4
03OS-222	AE-53	-	<	0.03	-	<	0.13	0.044	0.6	<	0.6	

Field Sample ID	Station name	Ammonia, dissolved	Boron dissolved	Hydrogen sulfide, dissolved	Iron, dissolved	Lithium, dissolved	Nitrate, dissolved	Phosphate, dissolved					
		qNH4 (mg/L as NH4+)	qB (mg/L as B)	qH2S (mg/L as H2S)	qFe (mg/L as Fe)	qLi (mg/L as Li)	qNO3 (mg/L as NO3)	qPO4 (mg/L as PO4)					
04OS-106	AE-53	-	<	0.05	-	1.0	0.067	<	1	-			
04OS-210	AE-53	-	<	0.25	-	<	0.25	0.020	<	0.4	-		
03OS-110	AE-54	-	<	0.01	-	<	0.05	0.017		0.53	<	0.2	
03OS-221	AE-54	-	<	0.03	-	<	0.13	0.035		0.30	<	0.3	
04OS-209	AE-54	-	<	0.10	-	<	0.1	0.008	<	0.1		-	
03OS-117	AE-56	-		0.23	-		51	0.025		0.23	<	0.1	
04OS-112	AE-56	-		0.21	-		65	0.023	<	0.02		-	
02OS-324	AP-01	-		1.9	-		610	3.22	<	4	<	1.0	
02OS-327	AR-01	<	0.1	0.02	<	0.2	<	0.006	0.010		1.2	<	0.02
02OS-438	AR-01	-		0.02	-		0.22	0.011	<	0.02	<	0.03	
03OS-105	AR-01	-		0.01	-		0.48	0.010	<	0.02	<	0.02	
03OS-206	AR-01	-		0.02	-		0.21	0.008		0.02	<	0.02	
04OS-113	AR-01	-		0.03	-		2.0	0.007		0.03		-	
04OS-235	AR-01	-		0.02	-		3.2	0.007	<	0.02		-	
05OS-133	AR-01	-		0.02	-		4.5	0.005		0.02		-	
Site B; monitoring wells													
02OS-322	BA-01S	-		0.74	-	<	0.25	0.071		8.1	<	0.4	
02OS-403	BA-01S	-		0.11	-		0.82	0.010	<	0.5	<	0.6	
02OS-516	BA-01S	-		0.3	-	<	0.25	0.080		1.1	<	0.25	
03OS-141	BA-01S	-		0.06	-		0.05	0.005		0.45	<	0.3	
03OS-216	BA-01S	-		0.16	-	<	0.13	0.038		0.30	<	0.3	
04OS-125	BA-01S	-		0.07	-	<	0.05	0.004		0.16		-	
04OS-239	BA-01S	-		0.37	-	<	0.075	0.037	<	0.3		-	
05OS-106	BA-01S	-		1.6	-		1.2	0.18	<	0.2		-	
02OS-323	BA-01D	-		3.9	-	<	0.13	0.15		0.33	<	0.25	
02OS-405	BA-01D	-		4.6	-	<	0.13	0.11	<	0.4	<	0.3	
02OS-517	BA-01D	-		4.5	-	<	0.13	0.11	<	0.2	<	0.6	
03OS-142	BA-01D	-		4.5	-	<	0.025	0.11		0.5	<	0.2	
03OS-217	BA-01D	-		4.1	-	<	0.13	0.094		6.3	<	0.2	
04OS-126	BA-01D	-		4.4	-		0.08	0.088	<	0.3		-	
04OS-240	BA-01D	-		4.3	-		0.33	0.081	<	0.3		-	
05OS-107	BA-01D	-		4.4	-		2.2	0.083	<	0.2		-	
02OS-318	BA-02S	-		1.7	-	<	0.13	0.22		0.28	<	0.3	
02OS-319	BA-02D	-		1.8	-	<	0.13	0.20	<	0.1	<	0.3	
02OS-401	BA-02D	-		1.9	-	<	0.13	0.19	<	0.2	<	0.3	
02OS-501	BA-02D	-		2.1	-	<	0.13	0.17	<	0.2	<	0.25	
03OS-119	BA-02D	-		2.0	-	<	0.13	0.18	<	0.2	<	0.2	
03OS-211	BA-02D	-		1.9	-	<	0.13	0.18		0.20	<	0.2	
04OS-124	BA-02D	-		2.0	-	<	0.13	0.18	<	0.4		-	
04OS-238	BA-02D	-		1.9	-	<	0.075	0.17	<	0.4		-	
05OS-102	BA-02D	-		2.0	-		0.60	0.17		0.32		-	
02OS-320	BA-03S	-		3.9	-	<	0.13	0.19	<	0.1	<	0.3	
02OS-504	BA-03S	-		1.2	-	<	0.25	0.17	<	0.2	<	0.25	
03OS-120	BA-03S	-		1.0	-	<	0.25	0.16	<	0.6	<	0.6	
03OS-212	BA-03S	-		0.79	-	<	0.25	0.15		0.60	<	0.6	

Field Sample ID	Station name	Ammonia, dissolved	Boron dissolved	Hydrogen sulfide, dissolved	Iron, dissolved	Lithium, dissolved	Nitrate, dissolved	Phosphate, dissolved				
		qNH4 (mg/L as NH4+)	qB (mg/L as B)	qH2S (mg/L as H2S)	qFe (mg/L as Fe)	qLi (mg/L as Li)	qNO3 (mg/L as NO3)	qPO4 (mg/L as PO4)				
04OS-122	BA-03S	-	1.0	-	0.24	0.16	<	0.8	-			
04OS-236	BA-03S	-	0.80	-	<	0.15	0.15	<	0.8	-		
05OS-105	BA-03S	-	0.84	-	2.8	0.14	<	0.4	-			
02OS-321	BA-03D	-	4.6	-	<	0.13	0.14	<	0.1	<	0.3	
02OS-402	BA-03D	-	5.1	-	0.88	0.13	<	0.2	<	0.3		
02OS-505	BA-03D	-	5.7	-	<	0.13	0.11	<	0.2	<	0.3	
03OS-121	BA-03D	-	6.0	-	<	0.13	0.11	5.8	<	0.2		
03OS-213	BA-03D	-	5.9	-	<	0.13	0.10	6.4	<	0.2		
04OS-123	BA-03D	-	5.1	-	1.2	0.12	<	0.3	-			
04OS-237	BA-03D	-	4.8	-	1.3	0.13	<	0.4	-			
05OS-104	BA-03D	-	4.9	-	1.4	0.12	<	0.2	-			
02OS-423	BE-01	-	0.80	-	<	0.13	0.12	<	0.2	<	0.3	
04OS-144	BE-01	-	0.72	-	0.14	0.045	0.97	-				
02OS-303	BE-03	-	0.04	-	0.31	0.041	5.1	<	0.4			
02OS-411	BE-03	-	0.07	-	0.74	0.011	<	0.5	<	0.8		
03OS-144	BE-03	-	0.04	-	0.15	0.004	0.64	<	0.3			
02OS-408	BE-04	-	0.27	-	<	0.25	0.041	5.6	<	1.5		
03OS-148	BE-04	-	0.12	-	<	0.25	0.034	29	<	1		
04OS-242	BE-04	-	<	0.40	-	<	0.15	0.042	<	1	-	
02OS-409	BE-06	-	0.06	-	<	0.13	0.012	<	0.5	<	0.4	
02OS-519	BE-06	-	0.03	-	<	0.05	0.005	0.21	<	0.05		
03OS-139	BE-06	-	<	0.002	-	0.025	0.001	2.9	<	0.04		
02OS-305	BE-07	9.8	0.11	0.9	150	0.21	3.1	<	0.2			
02OS-414	BE-07	-	0.17	-	120	0.14	<	1.0	<	1.8		
02OS-415	BE-07	-	0.16	-	120	0.20	<	1.0	<	1.8		
02OS-508	BE-07	-	0.13	-	180	0.095	<	0.2	<	0.25		
03OS-151	BE-07	-	0.10	-	48	0.054	<	0.5	<	0.5		
04OS-136	BE-07	-	0.08	-	22	0.050	<	0.6	-			
02OS-422	BE-08	-	0.82	-	<	0.25	0.15	<	1	<	0.6	
02OS-515	BE-08	-	0.37	-	<	0.5	0.069	42	<	0.5		
03OS-147	BE-08	-	0.21	-	<	0.25	0.036	68	<	1		
04OS-129	BE-08	-	0.57	-	<	0.25	0.083	56	-			
02OS-412	BE-09	-	0.02	-	3.4	0.008	<	0.5	<	0.9		
02OS-511	BE-09	-	<	0.07	-	36	<	0.005	<	0.2	<	0.25
03OS-146	BE-09	-	0.09	-	54	0.004	<	0.8	<	0.8		
04OS-128	BE-09	-	0.06	-	3.3	0.003	42	-				
02OS-413	BE-10	-	<	0.03	-	<	0.25	0.010	<	0.5	<	1.2
02OS-507	BE-10	-	0.03	-	<	0.25	0.007	83	<	0.5		
03OS-129	BE-10	-	<	0.04	-	<	0.25	0.006	20	<	1	
04OS-131	BE-10	-	<	0.05	-	<	0.25	0.004	25	-		
02OS-420	BE-11	-	<	0.03	-	<	0.25	0.038	<	1	<	2
02OS-506	BE-11	-	0.12	-	<	0.25	0.016	5.4	n	0.4		
03OS-128	BE-11	-	<	0.07	-	<	0.5	0.032	38	<	1	
04OS-130	BE-11	-	0.13	-	<	0.25	0.065	29	-			
02OS-421	BE-12	-	0.06	-	<	0.25	0.042	1.2	<	1.5		

Field Sample ID	Station name	Ammonia, dissolved	Boron dissolved	Hydrogen sulfide, dissolved	Iron, dissolved	Lithium, dissolved	Nitrate, dissolved	Phosphate, dissolved				
		qNH4 (mg/L as NH4+)	qB (mg/L as B)	qH2S (mg/L as H2S)	qFe (mg/L as Fe)	qLi (mg/L as Li)	qNO3 (mg/L as NO3)	qPO4 (mg/L as PO4)				
02OS-509	BE-12	-	0.14	-	<	0.5	0.049	41	<	0.25		
03OS-145	BE-12	-	<	0.10	-	<	0.5	0.060	51	<	2.0	
04OS-127	BE-12	-	0.24	-	<	0.25	0.028	33		-		
02OS-307	BE-13	3.4	0.04	1.8	130	0.007	<	0.5	<	0.1		
02OS-416	BE-13	-	0.39	-	9.1	0.082	<	1.0	<	0.6		
02OS-512	BE-13	-	0.52	-	<	0.25	0.084	1.7	<	0.5		
03OS-127	BE-13	-	0.42	-	<	0.25	0.099	1.2	<	0.5		
04OS-138	BE-13	-	0.42	-	<	0.25	0.12	<	0.80	-		
02OS-410	BE-15	-	0.03	-	<	0.13	0.006	4.0	<	0.4		
02OS-518	BE-15	-	0.05	-	<	0.13	0.007	0.15	<	0.6		
03OS-140	BE-15	-	<	0.01	-	<	0.01	0.002	0.22	<	0.2	
02OS-417	BE-16	-	0.30	-	9.0	0.037	<	0.5	<	0.6		
02OS-513	BE-16	-	0.43	-	16	0.053		4.0	<	0.5		
03OS-125	BE-16	-	0.33	-	13	0.040		2.8	<	0.4		
04OS-137	BE-16	-	0.16	-	<	0.25	0.022	<	0.6	-		
02OS-418	BE-17	-	0.41	-	<	0.25	0.078	<	1	<	1.5	
02OS-514	BE-17	-	0.54	-	<	0.25	0.075	0.9	<	0.5		
03OS-126	BE-17	-	0.40	-	<	0.25	0.076	0.5	<	0.4		
04OS-135	BE-17	-	0.26	-	<	0.25	0.051	<	0.8	-		
02OS-407	BE-18	-	0.16	-	33	0.018	<	0.5	<	0.8		
02OS-521	BE-18	-	0.09	-	35	0.021		0.21	<	0.25		
03OS-149	BE-18	-	<	0.03	-	3.7	0.006	1.9	<	0.3		
04OS-140	BE-18	-	<	0.05	-	4.5	0.008	0.7		-		
03OS-150	BE-19	-	0.04	-	30	0.006		0.9	<	0.3		
03OS-143	BE-51	-	0.03	-	<	0.01	0.021	2.2	<	0.1		
04OS-143	BE-51	-	0.02	-	0.03	0.012		0.11		-		
03OS-135	BE-52	-	<	0.05	-	<	0.25	0.042	<	0.8		
03OS-136	BE-53	-	<	0.05	-	36	0.010	18	<	1		
04OS-142	BE-53	-	<	0.20	-	17	<	0.008		38	-	
03OS-130	BE-54	-	0.10	-	0.22	0.002		5.9	<	0.3		
03OS-134	BE-55	-	<	0.10	-	<	0.5	0.048	<	2	<	2
04OS-141	BE-55	-	<	0.20	-	1.0	0.034	<	1.5		-	
04OS-245	BE-55	-	<	0.80	-	0.36	0.064	<	2		-	
03OS-133	BE-56	-	0.13	-	0.33	0.047		11	<	1		
04OS-244	BE-56	-	<	0.80	-	<	0.3	0.062		2	-	
03OS-132	BE-57	-	0.06	-	0.24	0.025	<	0.3	<	0.3		
03OS-131	BE-58	-	0.02	-	<	0.05	0.005	0.4	<	0.2		
04OS-139	BE-58	-	<	0.05	-	<	0.13	0.013		0.5	-	
03OS-123	BE-59	-	0.14	-	<	0.25	0.087	1.5	<	0.8		
04OS-133	BE-59	-	0.07	-	<	0.13	0.033	1.1		-		
03OS-122	BE-60	-	0.13	-	0.83	0.005		6.2	<	0.4		
04OS-132	BE-60	-	<	0.10	-	<	0.25	0.003		5.0	-	
03OS-124	BE-61	-	0.08	-	<	0.13	0.041	0.6	<	0.4		
04OS-134	BE-61	-	0.11	-	<	0.13	0.021	0.7		-		
03OS-152	BE-62	-	0.41	-	59	0.18	<	1	<	1		

Field Sample ID	Station name	Ammonia, dissolved qNH4 (mg/L as NH4+)	Boron dissolved qB (mg/L as B)	Hydrogen sulfide, dissolved qH2S (mg/L as H2S)	Iron, dissolved qFe (mg/L as Fe)	Lithium, dissolved qLi (mg/L as Li)	Nitrate, dissolved qNO3 (mg/L as NO3)	Phosphate, dissolved qPO4 (mg/L as PO4)				
04OS-145	BE-62	-	0.39	-	47	0.16	<	0.8	-			
04OS-248	BE-71	-	3.1	-	4.1	0.20	<	0.5	-			
05OS-109	BE-71	-	2.4	-	3.0	0.19	<	0.25	-			
04OS-249	BE-72	-	2.4	-	1.1	0.22	<	0.5	-			
05OS-108	BE-72	-	2.3	-	<	0.5	0.23	<	0.25	-		
04OS-247	BE-73	-	1.3	-	<	0.15	0.30	<	0.4	-		
05OS-111	BE-73	-	0.94	-	2.8	0.19	<	0.25	-			
04OS-250	BE-74	-	2.1	-	2.1	0.27	<	0.8	-			
05OS-110	BE-74	-	2.2	-	1.6	0.31	<	0.4	-			
02OS-304	BR-01 (prior to completion)	-	1.0	-	<	0.025	0.040	0.27	<	0.02		
02OS-308	BR-01 (prior to completion)	-	1.5	-	<	0.05	0.049	<	0.05	<	0.02	
02OS-315	BR-01 (prior to completion)	-	1.7	-	<	0.025	0.046	<	0.05	<	0.02	
04OS-246	BR-01S	-	<	0.20	-	<	0.075	0.13	<	0.8	-	
02OS-406	BR-01D	-	0.13	-	<	0.13	0.12	<	0.5	<	0.8	
02OS-503	BR-01D	-	0.31	-	0.48	0.051	0.07	n	0.06			
03OS-137	BR-01D	-	0.35	-	0.03	0.044	0.08	<	0.04			
03OS-215	BR-01D	-	0.36	-	0.16	0.045	0.08		0.02			
04OS-241	BR-01D	-	0.34	-	2.0	0.043	0.18		-			
05OS-103	BR-01D	-	0.34	-	0.80	0.043	0.05		-			
02OS-312	BR-02 (prior to completion)	-	2.8	-	<	0.13	0.23	<	0.2	<	0.04	
02OS-313	BR-02 (prior to completion)	4.6	3.1	<	0.2	<	0.13	0.22	<	0.2	<	0.04
02OS-335	BR-02D	-	1.4	-	<	0.025	0.10	0.23	<	0.02		
02OS-404	BR-02D	-	5.2	-	0.27	0.13	<	0.5	<	0.4		
02OS-502	BR-02D	-	6.7	-	<	0.05	0.079	8.4	<	0.25		
03OS-138	BR-02D	-	6.5	-	1.5	0.12	<	0.3	<	0.3		
03OS-214	BR-02D	-	6.2	-	1.2	0.12	0.58	<	0.2			
04OS-243	BR-02D	-	6.1	-	0.96	0.12	<	0.3		-		
05OS-101	BR-02D	-	6.1	-	5.0	0.10	<	0.15		-		
Site B; surface waters and reinjection tai												
01OS-113	small pool, near abandoned tank battery	<	0.1	0.11	-	<	0.13	0.015	<	0.4	<	0.04
02OS-301	small pool, near abandoned tank battery	-	0.25	-	-	<	0.25	0.16	<	0.3	<	0.4
01OS-114	large pool, nr BA-01 well	0.1	0.02	-	-	<	0.05	0.002		0.66	<	0.015
01OS-201	EPA-1 "hand dug" hole	-	0.57	-	-	130	2.85	<	2	<	1	
02OS-311	creek, near BA-01 well	-	0.05	-	-	17	0.029	<	0.15	<	0.04	
01OS-202	injection pit	-	0.11	-	-	1.8	0.16	<	0.4	<	0.2	
02OS-316	injection pit	-	0.45	-	-	<	0.50	1.07	<	1.5	<	0.4
02OS-317	main pit	20	0.57	0.4	41	1.40	<	1	<	0.2		
02OS-510	main pit	-	0.65	-	<	0.5	2.06	<	0.2	<	0.25	
02OS-314	reinjection tank, produced water	70	2.9	<	0.2	36	8.48	<	0.5	<	0.1	

ndix B. Analytic data for water samples

determined; column labeled q followed by an

		organic		organic		organic		organic		organic		organic		organic		organic			
Field Sample ID	Station name	Total organic carbon, dissolved		Acetate, dissolved		Benzene dissolved		Butyrate, dissolved		Ethylbenzene, dissolved		Formate, dissolved		Malonate, dissolved		m-Xylene + p-Xylene, dissolved		o-Xylene, dissolved	
		(mg/L)	q	(mg/L)	q	(mg/L)	q	(mg/L)	q	(mg/L)	q	(mg/L)	q	(mg/L)	q	(mg/L)	q	(mg/L)	q
Local domestic ground water wells																			
01OS-101	Bolin well	-	<	0.02		-	<	0.05		-		0.02	<	0.15		-		-	
01OS-102	Hurn well	0.4	<	0.02		-	<	0.05		-		0.05	<	0.08		-		-	
Local oil/gas wells																			
01OS-103	Reynolds #4	5.4		0.87		0.76	<	0.25		0.005		0.25	<	0.15		0.022		0.025	
01OS-104	ECC #10	2.5		2.2		-	<	0.25		-		0.14	<	0.15		-		-	
01OS-105	ECC #3	3.4		0.52		0.70	<	0.25		0.004		0.36	<	0.15		0.020		0.028	
01OS-106	Lebow #8	3.0		2.4		0.49	<	0.25		0.011		0.38	<	0.15		0.048		0.047	
01OS-107	Millard #3	1.9		0.61		-	<	0.25		-		0.38	<	0.15		-		-	
01OS-108	ECC #5	5.8		5.2		0.90	<	0.25		0.006		0.26	<	0.15		0.028		0.043	
01OS-109	Ungermann #1	6.6		1.5		0.23	<	0.25		0.016		0.38	<	0.15		0.076		0.089	
01OS-110	TEC T1-19 (coal-bed methane)	4.3		1.4		0.34	<	0.25		0.020		0.32	<	0.15		0.077		0.065	
Skiatook Lake																			
01OS-111	Skiatook Lake, near dam	4.5		-		-		-		-		-		-		-		-	
02OS-309	Skiatook Lake, site B	3.8		-		-		-		-		-		-		-		-	
02OS-310	Skiatook Lake, site B	3.8		-		-		-		-		-		-		-		-	
02OS-338	Skiatook Lake, site B	-		-		-		-		-		-		-		-		-	
02OS-339	Skiatook Lake, site A	-		-		-		-		-		-		-		-		-	
02OS-520	Skiatook Lake, site B	4.4		-		-		-		-		-		-		-		-	
04OS-212	Skiatook Lake, site A	4.8		-		-		-		-		-		-		-		-	
Site A; monitoring wells																			
02OS-430	AA-01D	99		170		-	<	0.2		-	<	0.08	<	0.4		-		-	
02OS-523	AA-01D	498		-		0.20		-	<	0.15		-		-	<	0.19	<	0.09	
03OS-108	AA-01D	255		660	n	0.006	<	0.35	n	0.007		0.35	<	0.1	n	0.005	n	0.020	
03OS-205	AA-01D	122		260		0.041	<	0.32	n	0.002		0.19	<	0.06	n	0.003	<	0.09	
04OS-105	AA-01D	31		0.11		-	<	0.1		-		0.14		-		-		-	
04OS-203	AA-01D	12		0.08	<	0.005	<	0.1	<	0.005		0.08		-	<	0.01	<	0.006	
05OS-134	AA-01D	12		0.9	<	0.005	<	0.25	<	0.005	<	0.1		-	<	0.01	<	0.006	
02OS-337	AA-02S	-		-		-		-		-		-		-		-		-	
02OS-426	AA-02S	2.4		0.08		-	<	0.2		-		0.09	<	0.2		-		-	
02OS-522	AA-02S	2.5		-	<	0.075		-	<	0.15		-		-	<	0.19	<	0.09	
03OS-106	AA-02S	2.6		0.03	n	0.007	<	0.1	n	0.004		0.04	<	0.05	n	0.004	n	0.011	
03OS-207	AA-02S	2.8		0.04	<	0.010	<	0.07	n	0.001		0.05	<	0.03	<	0.012	<	0.009	
04OS-104	AA-02S	1.9		0.03		-	<	0.05		-	<	0.02		-		-		-	
04OS-230	AA-02S	1.9		0.05	<	0.005	<	0.05	<	0.005	<	0.02		-	<	0.01	<	0.006	
05OS-139	AA-02S	2.8		0.06	<	0.005	<	0.05	<	0.005	<	0.02		-	<	0.01	<	0.006	
02OS-336	AA-02D	-		-		-		-		-		-		-		-		-	
02OS-427	AA-02D	113		200		-	<	0.2		-	<	0.08	<	0.25		-		-	
02OS-527	AA-02D	30		-		0.21		-		0.21		-		-	<	0.19	<	0.09	
03OS-107	AA-02D	10	<	0.02	<	0.04	<	0.1	n	0.007	<	0.05	<	0.3	<	0.075	<	0.05	
03OS-208	AA-02D	4.0		0.04		0.028	<	0.27	n	0.004	<	0.04	<	0.65	n	0.04	<	0.009	
04OS-103	AA-02D	2.9		3.0		-	<	0.1		-	<	0.04		-		-		-	

Field Sample ID	Station name	Total organic carbon, dissolved		Acetate, dissolved		Benzene dissolved		Butyrate, dissolved		Ethylbenzene, dissolved		Formate, dissolved		Malonate, dissolved		m-Xylene + p-Xylene, dissolved		o-Xylene, dissolved	
		(mg/L)	q	(mg/L)	q	(mg/L)	q	(mg/L)	q	(mg/L)	q	(mg/L)	q	(mg/L)	q	(mg/L)	q	(mg/L)	q
04OS-231	AA-02D	5.1		3.0	<	0.005	<	0.1	<	0.005		0.05	<	-	<	0.01	<	0.006	
05OS-140	AA-02D	3.9		0.79	<	0.005	<	0.05	<	0.005		0.02	<	-	<	0.01	<	0.006	
02OS-428	AA-03S	53		100		-	<	0.2		-	<	0.08	<	0.06		-		-	
03OS-103	AA-03S	4.4	<	0.02	n	0.006	<	0.05	<	0.05		0.03	<	0.02	n	0.004		0.062	
03OS-203	AA-03S	5.1		0.02	n	0.001	<	0.05	n	0.003		0.11	<	0.03	n	0.002	n	0.001	
04OS-205	AA-03S	4.4		0.07	<	0.005	<	0.05	<	0.005	<	0.02		-	<	0.01	<	0.006	
05OS-142	AA-03S	5.0		0.10	<	0.005	<	0.05	<	0.005	<	0.02		-	<	0.01	<	0.006	
02OS-429	AA-03D	203		520		-		0.51		-	<	0.08	<	0.06		-		-	
02OS-524	AA-03D	20		-		0.21		-	<	0.15		-		-	<	0.19	<	0.09	
03OS-104	AA-03D	19		0.09	n	0.005		0.1	n	0.007		0.13	<	0.05	n	0.007	<	0.05	
03OS-204	AA-03D	8.4		0.04	n	0.001	<	0.27	n	0.002		0.05	<	0.05	n	0.001	<	0.009	
04OS-116	AA-03D	8.0		0.05		-	<	0.05		-	<	0.02		-		-		-	
04OS-211	AA-03D	4.4		0.03	<	0.005	<	0.05	<	0.005	<	0.02		-	<	0.01	<	0.006	
05OS-141	AA-03D	5.8		0.07	<	0.005	<	0.05	<	0.005	<	0.02		-	<	0.01	<	0.006	
02OS-424	AA-04S	3.6	<	0.04		-	<	0.05		-	<	0.04	<	0.06		-		-	
02OS-526	AA-04S	3.5		-	<	0.075		-	<	0.15		-		-	<	0.19	<	0.09	
03OS-101	AA-04S	3.6	<	0.02	n	0.013	<	0.05	n	0.003		0.05	<	0.1	n	0.026	n	0.02	
03OS-201	AA-04S	3.5	<	0.02	<	0.010	<	0.05	<	0.007		0.06	<	0.1	n	0.001	<	0.009	
04OS-109	AA-04S	3.3		0.05		-	<	0.05		-	<	0.02		-		-		-	
04OS-201	AA-04S	3.0		0.03	<	0.005	<	0.05	<	0.005	<	0.02		-	<	0.01	<	0.006	
05OS-112	AA-04S	2.0		0.28	<	0.005	<	0.05	<	0.005	<	0.02		-	<	0.01	<	0.006	
02OS-425	AA-04D	1.9	<	0.04		-	<	0.1		-	<	0.08	<	0.03		-		-	
02OS-525	AA-04D	3.6		-		0.21		-	<	0.15		-		-	<	0.19	<	0.09	
03OS-102	AA-04D	3.3	<	0.02	n	0.009	<	0.05	n	0.022		0.04	<	0.05	n	0.021	<	0.05	
03OS-202	AA-04D	4.6		0.03	<	0.010	<	0.05	<	0.007		0.04	<	0.1	n	0.002	<	0.009	
05OS-113	AA-04D	2.0		0.07	<	0.005	<	0.05	<	0.005	<	0.02		-	<	0.01	<	0.006	
04OS-117	AA-05S	6.1		0.0															

Field Sample ID	Station name	Total organic carbon, dissolved		Acetate, dissolved		Benzene dissolved		Butyrate, dissolved		Ethylbenzene, dissolved		Formate, dissolved		Malonate, dissolved		m-Xylene + p-Xylene, dissolved		o-Xylene, dissolved	
		(mg/L)	q	(mg/L)	q	(mg/L)	q	(mg/L)	q	(mg/L)	q	(mg/L)	q	(mg/L)	q	(mg/L)	q	(mg/L)	q
04OS-221	AA-08S	25		2.2	<	0.005	<	0.15	<	0.005		0.07		-	<	0.01	<	0.006	
05OS-123	AA-08S	13		1.0	<	0.005	<	0.25	<	0.005	<	0.1		-	<	0.01	<	0.006	
04OS-156	AA-08D	-		-		-		-		-		-		-		-		-	
04OS-218	AA-08D	13		2.1	<	0.005	<	0.15	<	0.005		0.10		-	<	0.01	<	0.006	
05OS-124	AA-08D	0.8	<	0.02	<	0.005	<	0.05	<	0.005		0.05		-	<	0.01	<	0.006	
04OS-155	AA-09S	-		-		-		-		-		-		-		-		-	
04OS-232	AA-09S	5.3		0.32	<	0.005	<	0.15	<	0.005	<	0.02		-	<	0.01	<	0.006	
05OS-122	AA-09S	22		1.1	<	0.005	<	0.25	<	0.005	<	0.1		-	<	0.01	<	0.006	
04OS-154	AA-09D	-		-		-		-		-		-		-		-		-	
04OS-217	AA-09D	0.4	<	0.06	<	0.005	<	0.15	<	0.005		0.08		-	<	0.01	<	0.006	
05OS-121	AA-09D	0.6	<	0.02	<	0.005	<	0.05	<	0.005	<	0.02		-	<	0.01	<	0.006	
04OS-152	AA-10S	-		-		-		-		-		-		-		-		-	
04OS-224	AA-10S	15		0.08		0.010	<	0.05	<	0.005		0.02		-	<	0.01	<	0.006	
05OS-127	AA-10S	10		0.27	<	0.005	<	0.05	n	0.001		0.03		-	n	0.003	n	0.001	
04OS-151	AA-10M	-		-		-		-		-		-		-		-		-	
04OS-229	AA-10M	26		3.1	<	0.005	<	0.05	<	0.005		0.07		-	<	0.01	<	0.006	
05OS-126	AA-10M	4.4		0.08	<	0.005	<	0.05	<	0.005	<	0.02		-	<	0.01	<	0.006	
04OS-158	AA-10D	-		-		-		-		-		-		-		-		-	
04OS-215	AA-10D	1.2	<	0.06		0.35	<	0.15		0.015		0.11		-	<	0.01	<	0.006	
05OS-125	AA-10D	2.3		0.04		0.18	<	0.05	n	0.004		0.03		-	n	0.003	<	0.006	
04OS-161	AA-11S	-		-		-		-		-		-		-		-		-	
04OS-225	AA-11S	4.3		0.26	<	0.005	<	0.05	<	0.005		0.03		-	<	0.01	<	0.006	
05OS-131	AA-11S	2.2		0.10	<	0.005	<	0.05	<	0.005	<	0.02		-	<	0.01	<	0.006	
04OS-160	AA-11M	-		-		-		-		-		-		-		-		-	
04OS-228	AA-11M	25		9.9		0.013	<	0.1		0.005		0.04		-	<	0.01	<	0.006	
05OS-132	AA-11M	7.1		0.10		0.006	<	0.05		0.009		0.03		-		0.036		0.012	
04OS-159	AA-11D	-		-		-		-		-		-		-		-		-	
04OS-213	AA-11D	1.9	<	0.02	<	0.005	<	0.05	<	0.005	<	0.02		-	<	0.01	<	0.006	
05OS-130																			

Field Sample ID	Station name	Total organic carbon, dissolved		Acetate, dissolved		Benzene dissolved		Butyrate, dissolved		Ethylbenzene, dissolved		Formate, dissolved		Malonate, dissolved		m-Xylene + p-Xylene, dissolved		o-Xylene, dissolved	
		(mg/L)	q	(mg/L)	q	(mg/L)	q	(mg/L)	q	(mg/L)	q	(mg/L)	q	(mg/L)	q	(mg/L)	q	(mg/L)	q
03OS-210	AA-60D	1.9		0.71	n	0.002	<	0.05	<	0.007		0.06	<	0.1	n	0.001	<	0.009	
04OS-107	AA-60D	1.1		0.68		-	<	0.05		-		0.03		-		-		-	
04OS-204	AA-60D	0.7	<	0.02	<	0.005	<	0.05	<	0.005		0.03		-	<	0.01	<	0.006	
05OS-116	AA-60D	1.2		0.07	<	0.005	<	0.05	<	0.005	<	0.02		-	<	0.01	<	0.006	
03OS-153	AA-61	-		-		-		-		-		-		-		-		-	
03OS-209	AA-61	12		11		0.020	<	0.07		0.009		0.08	<	0.2	n	0.005		0.01	
04OS-101	AA-61	4.8	<	0.04		-	<	0.1		-	<	0.04		-		-		-	
04OS-206	AA-61	3.8		0.09	<	0.005	<	0.1	<	0.005	<	0.04		-	<	0.01	<	0.006	
05OS-129	AA-61	3.1		0.11		0.008	<	0.15	<	0.005	<	0.06		-	<	0.01	<	0.006	
04OS-202	AA-62	2.2		0.05	<	0.005	<	0.1	<	0.005	<	0.04		-	<	0.01	<	0.006	
05OS-128	AA-62	2.2		0.59	<	0.005	<	0.1	<	0.005	<	0.04		-	<	0.01	<	0.006	
02OS-434	AE-04	-		-		-		-		-		-		-		-		-	
02OS-332	AE-05	-		-		-		-		-		-		-		-		-	
02OS-333	AE-06	-		-	<	0.075		-	<	0.15		-		-	<	0.19	<	0.09	
02OS-435	AE-06	-		-		-		-		-		-		-		-		-	
04OS-111	AE-06	9.1	<	0.02		-	<	0.05		-		0.03		-		-		-	
02OS-334	AE-07	-		-		-		-		-		-		-		-		-	
04OS-110	AE-07	-		-		-		-		-		-		-		-		-	
02OS-326	AE-08	-		0.27	<	0.075	<	0.25	<	0.15		0.26	<	0.5	<	0.19	<	0.09	
02OS-432	AE-08	9.4		0.57		-	<	0.1		-		0.36	<	0.06		-		-	
04OS-114	AE-08	10		0.34		-	<	0.15		-	<	0.06		-		-		-	
02OS-331	AE-10	11		0.19	<	0.075	<	0.05	<	0.15		0.15	<	0.08	<	0.19	<	0.09	
02OS-328	AE-12	69		0.48	<	0.075	<	0.1	<	0.15		1.2	<	0.08	<	0.19	<	0.09	
02OS-436	AE-12	106		0.23		-	<	0.1		-		0.28	<	0.1		-		-	
02OS-325	AE-13	-		-	<	0.075		-	<	0.15		-		-		0.68	<	0.09	
02OS-329	AE-13	4.7		0.29	<	0.075	<	0.05	<	0.15		0.21	<	0.08	<	0.19	<	0.09	
02OS-431	AE-13	5.1		0.04		-	<	0.05		-	<	0.04	<	0.08		-		-	
03OS-118	AE-13	6.8		0.04	<	0.04	<	0.05	<	0.05		0.04	<	0.04	<	0.075	n	0.015	
03OS-223	AE-13	-		-		-		-		-		-		-		-		-	
04OS-102	AE-13	4.4		0.14		-	<	0.05		-		0.10		-		-		-	
04OS-207	AE-13	4.3		0.12	<	0.005	<	0.05	<	0.005	<	0.02		-	<	0.01	<	0.006	
03OS-116	AE-14	-		-		-		-		-		-		-		-		-	
02OS-330	AE-15	-		-		-		-		-		-		-		-		-	
02OS-437	AE-15	-		0.07		-	<	0.2		-	<	0.08	<	0.2		-		-	
03OS-115	AE-15	6.5		-		-		-		-		-		-		-		-	
03OS-113	AE-16	-		-		-		-		-		-		-		-		-	
03OS-114	AE-17	-		-		-		-		-		-		-		-		-	
03OS-112	AE-18	-		-		-		-		-		-		-		-		-	
02OS-433	AE-19	-		-		-		-		-		-		-		-		-	
03OS-109	AE-51	-		-		-		-		-		-		-		-		-	
03OS-220	AE-51	-		-		-		-		-		-		-		-		-	
03OS-219	AE-52	-		-		-		-		-		-		-		-		-	
04OS-208	AE-52	2.4		0.74	<	0.005	<	0.25	<	0.005	<	0.1		-	<	0.01	<	0.006	
03OS-111	AE-53	10		0.03	n	0.004	<	0.05	n	0.004		0.05	<	0.1	<	0.075	n	0.031	
03OS-222	AE-53	-		-		-		-		-		-		-		-		-	

Field Sample ID	Station name	Total organic carbon, dissolved		Acetate, dissolved		Benzene dissolved		Butyrate, dissolved		Ethylbenzene, dissolved		Formate, dissolved		Malonate, dissolved		m-Xylene + p-Xylene, dissolved		o-Xylene, dissolved	
		(mg/L)	q	(mg/L)	q	(mg/L)	q	(mg/L)	q	(mg/L)	q	(mg/L)	q	(mg/L)	q	(mg/L)	q	(mg/L)	q
04OS-106	AE-53	2.5		0.24		-	<	0.15		-	<	0.06		-		-		-	
04OS-210	AE-53	4.9		0.06	<	0.005	<	0.05	<	0.005	<	0.02		-	<	0.01	<	0.006	
03OS-110	AE-54	2.0		-		-		-		-		-		-		-		-	
03OS-221	AE-54	-		-		-		-		-		-		-		-		-	
04OS-209	AE-54	1.9		0.11	<	0.005	<	0.05	<	0.005	<	0.02		-	<	0.01	<	0.006	
03OS-117	AE-56	93		0.57		1.6	<	0.1		0.087		0.4	<	0.04	n	0.033		0.062	
04OS-112	AE-56	82		-		-		-		-		-		-		-		-	
02OS-324	AP-01	-		210		0.29		4.2	<	0.15		3.1		0.17	<	0.19	<	0.09	
02OS-327	AR-01	1.1		0.03		0.054	<	0.05	<	0.05		0.04	<	0.08	<	0.075	<	0.05	
02OS-438	AR-01	4.4		0.07		0.17	<	0.1	<	0.05		0.07	<	0.2	<	0.075	<	0.05	
03OS-105	AR-01	2.4		0.22		1.24	<	0.05	<	0.05		0.02	<	0.08	<	0.075	<	0.05	
03OS-206	AR-01	5.3		0.04		0.28	<	0.07		0.023		0.03	<	0.03		0.018	<	0.009	
04OS-113	AR-01	5.9		0.06		-	<	0.05		-		0.09		-		-		-	
04OS-235	AR-01	1.8		0.04		0.060	<	0.05	n	0.001		0.03		-	n	0.001	n	0.004	
05OS-133	AR-01	2.8		0.12		0.036	<	0.05	n	0.001		0.03		-	n	0.001	<	0.006	
Site B; monitoring wells																			
02OS-322	BA-01S	-		-		-		-		-		-		-		-		-	
02OS-403	BA-01S	7.6		0.90		-	<	0.05		-	<	0.04	<	0.08		-		-	
02OS-516	BA-01S	7.4		-		0.20		-	<	0.15		-		-	<	0.19	<	0.09	
03OS-141	BA-01S	7.2		0.03	n	0.006	<	0.05	<	0.05		0.03	<	0.03	<	0.075	<	0.05	
03OS-216	BA-01S	7.5		0.03		0.001	<	0.07	n	0.005	<	0.02	<	0.2	<	0.012	<	0.009	
04OS-125	BA-01S	6.9		0.18	n	0.001	<	0.05	<	0.01	<	0.02		-	<	0.01	n	0.001	
04OS-239	BA-01S	8.3	<	0.1	<	0.005	<	0.25	<	0.005	<	0.15		-	<	0.01	<	0.006	
05OS-106	BA-01S	7.2	<	0.1	<	0.005	<	0.25	<	0.005	<	0.1		-	<	0.01	<	0.006	
02OS-323	BA-01D	-		-		-		-		-		-		-		-		-	
02OS-405	BA-01D	1.1	<	0.04		-	<	0.15		-	<	0.04	<	1.8		-		-	
02OS-517	BA-01D	2.8		-		0.20		-	<	0.15		-		-	<	0.19	<	0.09	
03OS-142	BA-01D	1.9	<	0.04	n	0.011	<	0.1	<	0.05		0.17	<	0.65	<	0.075	<	0.05	
03OS-217	BA-01D	2.4	<	0.04	n	0.001	<	0.14	n	0.011		0.05	<	0.65	<	0.012	<	0.009	
04OS-126	BA-01D	1.0		0.14	<	0.010	<	0.25	n	0.002	<	0.1		-	n	0.002	<	0.01	
04OS-240	BA-01D	1.1		0.39	<	0.005	<	0.25	<	0.005	<	0.1		-	<	0.01	<	0.006	
05OS-107	BA-01D	0.5	<	0.1	<	0.005	<	0.15	<	0.005	<	0.06		-	<	0.01	<	0.006	
02OS-318	BA-02S	-		-		-		-		-		-		-		-		-	
02OS-319	BA-02D	-		-		-		-		-		-		-		-		-	
02OS-401	BA-02D	12		0.03		-	<	0.3		-	<	0.04	<	1.5		-		-	
02OS-501	BA-02D	0.5		-		0.21		-		0.22		-		-	<	0.19	<	0.09	
03OS-119	BA-02D	1.2	<	0.04	<	0.04	<	0.1	n	0.055	<	0.04	<	1.3	n	0.015	n	0.003	
03OS-211	BA-02D	1.0		0.09	<	0.01	<	0.14	<	0.007	<	0.04	<	1.3	n	0.001	<	0.009	
04OS-124	BA-02D	1.0		0.26	<	0.01	<	0.25	<	0.01	<	0.1		-	<	0.01	<	0.01	
04OS-238	BA-02D	0.7	<	0.1	<	0.005	<	0.25	<	0.005		0.26		-	<	0.01	<	0.006	
05OS-102	BA-02D	1.6		-		-		-		-		-		-		-		-	
02OS-320	BA-03S	-		-		6.4		-		0.72		-		-		0.76		0.58	
02OS-504	BA-03S	4.8		-		0.21		-	<	0.15		-		-	<	0.19	<	0.09	
03OS-120	BA-03S	5.3	<	0.04	<	0.04	<	0.18	<	0.05		0.20	<	0.2	n	0.003	<	0.05	
03OS-212	BA-03S	5.5	<	0.04	n	0.002	<	0.11	n	0.002		0.06	<	0.3	n	0.001	<	0.009	

Field Sample ID	Station name	Total organic carbon, dissolved		Acetate, dissolved		Benzene dissolved		Butyrate, dissolved		Ethylbenzene, dissolved		Formate, dissolved		Malonate, dissolved		m-Xylene + p-Xylene, dissolved		o-Xylene, dissolved	
		(mg/L)	q	(mg/L)	q	(mg/L)	q	(mg/L)	q	(mg/L)	q	(mg/L)	q	(mg/L)	q	(mg/L)	q	(mg/L)	q
04OS-122	BA-03S	6.3		0.18	n	0.002	<	0.15	n	0.003	<	0.06		-	<	0.01	<	0.01	
04OS-236	BA-03S	5.5		0.16	<	0.005	<	0.15	<	0.005	<	0.06		-	<	0.01	<	0.006	
05OS-105	BA-03S	4.8	<	0.06	<	0.005	<	0.15	<	0.005	<	0.06		-	<	0.01	<	0.006	
02OS-321	BA-03D	-		-		-		-		-		-		-		-		-	
02OS-402	BA-03D	1.4	<	0.075		-	<	0.1		-	<	0.2	<	1.0		-		-	
02OS-505	BA-03D	0.2		-		0.20		-		0.21		-		-	<	0.19	<	0.09	
03OS-121	BA-03D	0.4	<	0.04	n	0.011	<	0.1	<	0.05	<	0.04	<	0.65	<	0.075	n	0.021	
03OS-213	BA-03D	1.1	<	0.04	n	0.0016	<	0.14	n	0.001		0.05	<	0.5	n	0.001	n	0.001	
04OS-123	BA-03D	0.8		0.66	<	0.01	<	0.25	<	0.01	<	0.1		-	<	0.01	<	0.01	
04OS-237	BA-03D	0.8		0.80	<	0.005	<	0.25	<	0.005	<	0.1		-	<	0.01	<	0.006	
05OS-104	BA-03D	0.4	<	0.1	<	0.005	<	0.25	<	0.005	<	0.1		-	<	0.01	<	0.006	
02OS-423	BE-01	13		3.8		-		0.23		-		0.22	<	1.6		-		-	
04OS-144	BE-01	-		-		-		-		-		-		-		-		-	
02OS-303	BE-03	-		-		-		-		-		-		-		-		-	
02OS-411	BE-03	7.5	<	0.04		-	<	0.1		-		0.05	<	0.08		-		-	
03OS-144	BE-03	-		-		-		-		-		-		-		-		-	
02OS-408	BE-04	-		-		-		-		-		-		-		-		-	
03OS-148	BE-04	-		-		-		-		-		-		-		-		-	
04OS-242	BE-04	-		-		-		-		-		-		-		-		-	
02OS-409	BE-06	-	<	0.04		-	<	0.075		-		0.06	<	0.08		-		-	
02OS-519	BE-06	13		-		0.21		-	<	0.15		-		-	<	0.19	<	0.09	
03OS-139	BE-06	-		-		-		-		-		-		-		-		-	
02OS-305	BE-07	28		0.28	<	0.075	<	0.1	<	0.15		0.37	<	0.03	<	0.19	<	0.09	
02OS-414	BE-07	-		-		-		-		-		-		-		-		-	
02OS-415	BE-07	28		0.07		-	<	0.1		-		0.15	<	0.03		-		-	
02OS-508	BE-07	29		-		0.23		-	<	0.15		-		-	<	0.19		0.52	
03OS-151	BE-07	25		0.16		0.11	<	0.05		0.13		0.27	<	0.02		0.082		0.22	
04OS-136	BE-07	24		0.19		0.014	<	0.05		0.076		0.19		-		0.035		0.029	
02OS-422	BE-08	8.2	<	0.04		-	<	0.25		-	<	0.04	<	1.6		-		-	
02OS-515	BE-08	55		-	<	0.075		-		0.21		-		-	<	0.19	<	0.09	
03OS-147	BE-08	61		0.16	<	0.04	<	0.1	<	0.05		0.16	<	0.2	<	0.075	<	0.05	
04OS-129	BE-08	83	<	0.1	n	0.001	<	0.25	<	0.01	<	0.1		-	n	0.001	<	0.01	
02OS-412	BE-09	21	<	0.02		-	<	0.1		-		0.03	<	0.08		-		-	
02OS-511	BE-09	63		-		0.21		-	<	0.15		-		-	<	0.19	<	0.09	
03OS-146	BE-09	48		0.32	<	0.04		0.03	n	0.028		0.39	<	0.03	n	0.072		0.051	
04OS-128	BE-09	75		0.25	n	0.001	<	0.05	<	0.01		0.14		-		0.005	<	0.01	
02OS-413	BE-10	-	<	0.04		-	<	0.05		-	<	0.04	<	0.2		-		-	
02OS-507	BE-10	17		-	<	0.075		-		0.214		-		-	<	0.19	<	0.09	
03OS-129	BE-10	15	<	0.02	<	0.04	<	0.05	<	0.05		0.03	<	0.05	<	0.075	n	0.006	
04OS-131	BE-10	27		0.09	n	0.001	<	0.1	<	0.01	<	0.04		-	<	0.01	n	0.001	
02OS-420	BE-11	9.4	<	0.04		-	<	0.1		-	<	0.04	<	0.2		-		-	
02OS-506	BE-11	10		-	<	0.075		-	<	0.15		-		-	<	0.19	<	0.09	
03OS-128	BE-11	18		0.10	n	0.012	<	0.07	<	0.05		0.08	<	0.2	<	0.075		0.76	
04OS-130	BE-11	33		0.08	n	0.001	<	0.06	n	0.001		0.03		-	n	0.001	<	0.01	
02OS-421	BE-12	12	<	0.04		-	<	0.15		-	<	0.04	<	1.0		-		-	

Field Sample ID	Station name	Total organic carbon, dissolved		Acetate, dissolved		Benzene dissolved		Butyrate, dissolved		Ethylbenzene, dissolved		Formate, dissolved		Malonate, dissolved		m-Xylene + p-Xylene, dissolved		o-Xylene, dissolved	
		(mg/L)	q	(mg/L)	q	(mg/L)	q	(mg/L)	q	(mg/L)	q	(mg/L)	q	(mg/L)	q	(mg/L)	q	(mg/L)	q
02OS-509	BE-12	24		-		-		-		-		-		-		-		-	
03OS-145	BE-12	33		0.15		-	<	0.07		-		0.14	<	0.45		-		-	
04OS-127	BE-12	34		0.07	<	0.010	<	0.05	<	0.01	<	0.02	<	-	<	0.01	<	0.01	
02OS-307	BE-13	12		0.56	<	0.075	<	0.1	<	0.15	<	0.68	<	0.08		0.68	<	0.09	
02OS-416	BE-13	11	<	0.02		-	<	0.2		-	<	0.04	<	1.8		-		-	
02OS-512	BE-13	6.6		-	<	0.075		-		0.27		-		-	<	0.19	<	0.09	
03OS-127	BE-13	4.2	<	0.08	n	0.008	<	0.28	n	0.007	<	0.08	<	2.6	<	0.075	n	0.026	
04OS-138	BE-13	5.8		0.45		-	<	0.4		-	<	0.16		-		-		-	
02OS-410	BE-15	19	<	0.02		-	<	0.075		-		0.04	<	0.2		-		-	
02OS-518	BE-15	33		-		-		-		-		-		-		-		-	
03OS-140	BE-15	-		-		-		-		-		-		-		-		-	
02OS-417	BE-16	14		0.04		-	<	0.1		-		0.05	<	3.0		-		-	
02OS-513	BE-16	6.7		-	<	0.075		-		0.22		-		-	<	0.19	<	0.09	
03OS-125	BE-16	6.5		-	<	0.04		-	<	0.05		-		-	n	0.004	<	0.05	
04OS-137	BE-16	9.0	<	0.1	n	0.001	<	0.25	<	0.01	<	0.1		-	<	0.01	<	0.01	
02OS-418	BE-17	9.2	<	0.1		-	<	0.35		-	<	0.1	<	4.0		-		-	
02OS-514	BE-17	8.6		-	<	0.075		-	<	0.15		-		-	<	0.19	<	0.09	
03OS-126	BE-17	5.8	<	0.1		0.01	<	0.27	<	0.05	<	0.1	<	1.6	<	0.075	<	0.05	
04OS-135	BE-17	9.1		0.81		-	<	0.4		-	<	0.16		-		-		-	
02OS-407	BE-18	18	<	0.04		-	<	0.15		-		0.09	<	0.15		-		-	
02OS-521	BE-18	19		-		0.205		-		0.212		-		-	<	0.19	<	0.09	
03OS-149	BE-18	-		-		-		-		-		-		-		-		-	
04OS-140	BE-18	14		0.10		-	<	0.05		-		0.02		-		-		-	
03OS-150	BE-19	-		-		-		-		-		-		-		-		-	
03OS-143	BE-51	-		-		-		-		-		-		-		-		-	
04OS-143	BE-51	1.9		0.11	<	0.01	<	0.05	n	0.003		0.04		-	n	0.002	<	0.01	
03OS-135	BE-52	-		-		-		-		-		-		-		-		-	
03OS-136	BE-53	17		0.16	n	0.021	<	0.05	<	0.05		0.34	<	0.1	<	0.075	<	0.05	
04OS-142	BE-53	14		0.18		-	<	0.05		-		0.08		-		-		-	
03OS-130	BE-54	10		0.02	n	0.009	<	0.05	<	0.05		0.04	<	0.1	n	0.006		0.225	
03OS-134	BE-55	-		-		-		-		-		-		-		-		-	
04OS-141	BE-55	7.5		0.19	<	0.01	<	0.25	<	0.01	<	0.1		-	<	0.01	<	0.01	
04OS-245	BE-55	6.8		0.64	<	0.005	<	0.4	<	0.005	<	0.16		-	<	0.01	<	0.006	
03OS-133	BE-56	13		0.06	n	0.01	<	0.07	<	0.05		0.09	<	0.05	<	0.075	<	0.05	
04OS-244	BE-56	-		-		-		-		-		-		-		-		-	
03OS-132	BE-57	-		-	n	0.012		-	<	0.05		-		-	<	0.075	<	0.05	
03OS-131	BE-58	5.8		-		-		-		-		-		-		-		-	
04OS-139	BE-58	5.3		0.18		-	<	0.1		-		0.07		-		-		-	
03OS-123	BE-59	13		0.06	<	0.04	<	0.1	n	0.006		0.05	<	0.2	<	0.075		0.212	
04OS-133	BE-59	18		0.10	n	0.001	<	0.05	<	0.01	<	0.02		-	<	0.01	<	0.01	
03OS-122	BE-60	28		-	<	0.04		-	<	0.05		-		-	n	0.003	<	0.05	
04OS-132	BE-60	37		0.10	n	0.001	<	0.05	<	0.01		0.06		-	<	0.01	<	0.01	
03OS-124	BE-61	5.5		-	n	0.010		-	<	0.05		-		-	n	0.003	n	0.025	
04OS-134	BE-61	6.5		0.55	<	0.01	<	0.25	<	0.01	<	0.1		-	<	0.01	<	0.01	
03OS-152	BE-62	32		0.13		0.058	<	0.1	n	0.019		0.36	<	0.4	n	0.013	<	0.05	

Field Sample ID	Station name	Total organic carbon, dissolved (mg/L)	q	Acetate, dissolved (mg/L)	q	Benzene dissolved (mg/L)	q	Butyrate, dissolved (mg/L)	q	Ethylbenzene, dissolved (mg/L)	q	Formate, dissolved (mg/L)	q	Malonate, dissolved (mg/L)	q	m-Xylene + p-Xylene, dissolved (mg/L)	q	o-Xylene, dissolved (mg/L)	q
04OS-145	BE-62	24		0.61		0.012	<	0.15		0.052		0.12		-		0.041		0.031	
04OS-248	BE-71	-		-		-		-		-		-		-		-		-	
05OS-109	BE-71	1.1	<	0.1	<	0.005	<	0.5	<	0.005	<	0.2		-	<	0.01	<	0.006	
04OS-249	BE-72	-		-		-		-		-		-		-		-		-	
05OS-108	BE-72	1.4	<	0.1	<	0.005	<	0.4	<	0.005	<	0.16		-	<	0.01	<	0.006	
04OS-247	BE-73	-		-		-		-		-		-		-		-		-	
05OS-111	BE-73	3.6		0.27	<	0.005	<	0.05	<	0.005		0.17		-	<	0.01	<	0.006	
04OS-250	BE-74	-		-		-		-		-		-		-		-		-	
05OS-110	BE-74	1.0		0.31	<	0.005	<	0.75	<	0.005	<	0.3		-	<	0.01	<	0.006	
02OS-304	BR-01 (prior to completion)	1.8		0.90		-	<	0.25		-		0.57	<	0.5		-		-	
02OS-308	BR-01 (prior to completion)	-		-		-		-		-		-		-		-		-	
02OS-315	BR-01 (prior to completion)	-		-		-		-		-		-		-		-		-	
04OS-246	BR-01S	-		-		-		-		-		-		-		-		-	
02OS-406	BR-01D	6.7		0.04		-	<	0.15		-		0.06	<	0.1		-		-	
02OS-503	BR-01D	1.3		-	<	0.075		-	<	0.15		-		-	<	0.19	<	0.09	
03OS-137	BR-01D	-		-		-		-		-		-		-		-		-	
03OS-215	BR-01D	0.9		0.02	n	0.001	<	0.1	n	0.003	<	0.02	<	0.2	n	0.001	n	0.001	
04OS-241	BR-01D	0.6		0.06	<	0.005	<	0.05	<	0.005	<	0.02		-	<	0.01	<	0.006	
05OS-103	BR-01D	0.1		-		-		-		-		-		-		-		-	
02OS-312	BR-02 (prior to completion)	-		-		-		-		-		-		-		-		-	
02OS-313	BR-02 (prior to completion)	7.6		0.09	<	0.075	<	0.1	<	0.15		0.11	<	0.075	<	0.19	<	0.09	
02OS-335	BR-02D	5.2		0.09		0.24	<	0.1	<	0.15		0.12	<	0.075	<	0.19	<	0.09	
02OS-404	BR-02D	5.3		0.14		-	<	0.15		-		0.07	<	0.15		-		-	
02OS-502	BR-02D	0.6		-		0.28		-	<	0.15		-		-	<	0.19	<	0.09	
03OS-138	BR-02D	-		-		-		-		-		-		-		-		-	
03OS-214	BR-02D	1.1	<	0.02	<	0.01	<	0.11	n	0.011		0.05	<	0.3	<	0.012	<	0.009	
04OS-243	BR-02D	0.6		0.62		0.022	<	0.25		0.052	<	0.1		-		0.06		0.04	
05OS-101	BR-02D	5.6		0.36	n	0.0003	<	0.25		0.010	<	0.1		-		0.017		0.01	
Site B; surface waters and reinjection tank																			
01OS-113	small pool, near abandoned tank battery	14		1.1		-	<	0.25		-		0.14	<	0.75		-		-	
02OS-301	small pool, near abandoned tank battery	-		-		-		-		-		-		-		-		-	
01OS-114	large pool, nr BA-01 well	9.1		0.06		-	<	0.1		-		0.20	<	0.3		-		-	
01OS-201	EPA-1 "hand dug" hole			0.05		-	<	0.2		-	<	0.08	<	0.1		-		-	
02OS-311	creek, near BA-01 well	4.5		-		-		-		-		-		-		-		-	
01OS-202	injection pit	-		0.03		-	<	0.1		-		0.04	<	0.05		-		-	
02OS-316	injection pit	-		-		-		-		-		-		-		-		-	
02OS-317	main pit	43		0.63		0.23	<	0.1	<	0.15		0.31	<	0.03	<	0.19	<	0.09	
02OS-510	main pit	-		-		-		-		-		-		-		-		-	
02OS-314	reinjection tank, produced water	4.6		0.72		4.0	<	0.25		0.73		0.26	<	0.15		0.71		0.43	

Index B. Analytic data for water samples

determined; column labeled q followed by an

		organic		organic		organic		organic		isotope	isotope	isotope	isotope
Field Sample ID	Station name	Oxalate, dissolved	Propionate, dissolved	Succinate, dissolved	Toluene, dissolved	O-18/O-16, stable isotope ratio	H-2/H-1, stable isotope ratio	H-3, tritium units	H-3 uncertainty				
		(mg/L)	(mg/L)	(mg/L)	(mg/L)	ratio	ratio	units	units				
		q	q	q	q	(permil)	(permil)	+/- 1 sigma	1 sigma				
Local domestic ground water wells													
01OS-101	Bolin well	-	<	0.05	<	0.02	-	-5.72	-35.16	-	-		
01OS-102	Hurn well	-	<	0.05	<	0.02	-	-5.73	-34.89	-	-		
Local oil/gas wells													
01OS-103	Reynolds #4	-	<	0.25	<	0.5	0.31	-2.03	-9.91	-	-		
01OS-104	ECC #10	-	<	0.25	<	0.25	-	-2.95	-13.00	-	-		
01OS-105	ECC #3	-	<	0.25	<	0.5	0.30	-1.77	-9.32	-	-		
01OS-106	Lebow #8	-	<	0.25	<	1.2	0.40	-2.57	-10.60	-	-		
01OS-107	Millard #3	-	<	0.25	<	0.25	-	-3.51	-19.06	-	-		
01OS-108	ECC #5	-	<	0.25	<	0.62	0.37	-2.18	-10.05	-	-		
01OS-109	Ungermann #1	-	<	0.25	<	0.25	0.37	-3.38	-17.09	-	-		
01OS-110	TEC T1-19 (coal-bed methane)	-	<	0.25	<	0.12	0.52	-2.92	-14.36	-	-		
Skiatook Lake													
01OS-111	Skiatook Lake, near dam	-		-		-	-	-2.46	-15.27	-	-		
02OS-309	Skiatook Lake, site B	-		-		-	-	-1.75	-13.66	-	-		
02OS-310	Skiatook Lake, site B	-		-		-	-	-1.77	-14.50	5.3	0.4		
02OS-338	Skiatook Lake, site B	-		-		-	-	-4.66	-29.89	-	-		
02OS-339	Skiatook Lake, site A	-		-		-	-	-2.79	-19.30	-	-		
02OS-520	Skiatook Lake, site B	-		-		-	-	-	-	-	-		
04OS-212	Skiatook Lake, site A	0.07		-		-	-	-3.14	-	4.2	0.28		
Site A; monitoring wells													
02OS-430	AA-01D	-	<	0.2	<	0.04	-	-5.30	-	-	-		
02OS-523	AA-01D	-		-		-	0.35	-	-	-	-		
03OS-108	AA-01D	-	<	0.26	<	0.1	<	0.050	-	-	-		
03OS-205	AA-01D	-	<	0.15	<	0.06	<	0.01	-	-	-		
04OS-105	AA-01D	-	<	0.1	<	0.1	-	-	-	1.0	0.3		
04OS-203	AA-01D	-	<	0.1	<	0.1	<	0.005	-	-	-		
05OS-134	AA-01D	-	<	0.25	<	0.5	<	0.005	-	-	1.2	0.3	
02OS-337	AA-02S	-		-		-	-	-5.38	-32.68	-	-		
02OS-426	AA-02S	-	<	0.2	<	0.02	-	-5.06	-	-	-		
02OS-522	AA-02S	-		-		-	0.36	-	-	-	-		
03OS-106	AA-02S	-	<	0.05	<	0.02	n	0.005	-	-	-		
03OS-207	AA-02S	-	<	0.05	<	0.02	<	0.005	-	-	-		
04OS-104	AA-02S	-	<	0.05	<	0.05	-	-5.45	-	-	-		
04OS-230	AA-02S	-	<	0.05	<	0.05	<	0.005	-5.24	-	-		
05OS-139	AA-02S	-	<	0.05	<	0.1	<	0.005	-	-	9.9	0.4	
02OS-336	AA-02D	-		-		-	-	-5.47	-33.62	-	-		
02OS-427	AA-02D	-	<	0.2	<	0.04	-	-5.85	-	-	-		
02OS-527	AA-02D	-		-		-	0.27	-	-	-	-		
03OS-107	AA-02D	-	<	0.5		0.07	n	0.005	-	-	-		
03OS-208	AA-02D	-	<	1.7	<	0.04		0.013	-	-	-		
04OS-103	AA-02D	-	<	0.1	<	0.1	-	-5.95	-	-	-		

Field Sample ID	Station name	Oxalate, dissolved (mg/L)		Propionate, dissolved (mg/L)		Succinate, dissolved (mg/L)		Toluene, dissolved (mg/L)	O-18/O-16, stable isotope ratio (permil)	H-2/H-1, stable isotope ratio (permil)	H-3, tritium units+/- 1 sigma	H-3 uncertainty tritium units
04OS-231	AA-02D	0.13	<	0.1	<	0.1	<	0.005	-5.83	-	0.1	0.3
05OS-140	AA-02D	-	<	0.05	<	0.1	<	0.005	-	-	-0.09	0.24
02OS-428	AA-03S	-		3.3	<	0.04		-	-5.53	-	-	-
03OS-103	AA-03S	-	<	0.1	<	0.02	n	0.025	-	-	-	-
03OS-203	AA-03S	-	<	0.05		0.07	n	0.001	-	-	-	-
04OS-205	AA-03S	-	<	0.05	<	0.05	<	0.005	-	-	-	-
05OS-142	AA-03S	-	<	0.05	<	0.1	<	0.005	-	-	-	-
02OS-429	AA-03D	-		0.7	<	0.04		-	-5.18	-	-	-
02OS-524	AA-03D	-		-		-		0.32	-	-	-	-
03OS-104	AA-03D	-	<	0.05	<	0.02	<	0.050	-	-	-	-
03OS-204	AA-03D	-	<	0.05	<	0.02	n	0.001	-	-	-	-
04OS-116	AA-03D	-	<	0.05	<	0.05		-	-	-	-	-
04OS-211	AA-03D	-	<	0.05	<	0.05	<	0.005	-	-	-	-
05OS-141	AA-03D	-	<	0.05	<	0.1	<	0.005	-	-	-	-
02OS-424	AA-04S	-	<	0.05	<	0.04		-	-5.92	-	-	-
02OS-526	AA-04S	-		-		-		0.26	-	-	-	-
03OS-101	AA-04S	-	<	0.05	<	0.02		0.12	-	-	-	-
03OS-201	AA-04S	-	<	0.05	<	0.02	n	0.001	-	-	-	-
04OS-109	AA-04S	-	<	0.05	<	0.05		-	-5.78	-	-	-
04OS-201	AA-04S	-	<	0.05	<	0.05	<	0.005	-	-	-	-
05OS-112	AA-04S	-	<	0.05	<	0.5	<	0.005	-	-	-	-
02OS-425	AA-04D	-	<	0.1	<	0.02		-	-5.91	-	-	-
02OS-525	AA-04D	-		-		-		0.28	-	-	-	-
03OS-102	AA-04D	-	<	0.05	<	0.02	n	0.044	-	-	-	-
03OS-202	AA-04D	-	<	0.05		0.14	<	0.001	-	-	-	-
05OS-113	AA-04D	-	<	0.05	<	0.5	<	0.005	-	-	6.9	0.4
04OS-117	AA-05S	-	<	0.05	<	0.05	<	0.01	-5.52	-	-	-
04OS-226	AA-05S	-	<	0.05	<	0.05	<	0.005	-5.70	-	5.8	0.3
05OS-118	AA-05S	-	<	0.05	<	0.1	<	0.005	-	-	5.3	0.3
04OS-118	AA-05D	-	<	0.1	<	0.1	<	0.01	-5.81	-	-	-
04OS-216	AA-05D	-	<	0.1	<	0.1	<	0.005	-5.24	-	0.22	0.24
05OS-117	AA-05D	-	<	0.05	<	0.1	<	0.005	-	-	-0.04	0.24
04OS-119	AA-06S	-	<	0.1	<	0.1	<	0.01	-5.21	-	-	-
04OS-233	AA-06S	-	<	0.1	<	0.1	n	0.001	-5.25	-	1.4	0.3
05OS-136	AA-06S	-	<	0.1	<	0.2	<	0.005	-	-	1	0.3
04OS-120	AA-06D	-	<	0.15	<	0.15	<	0.01	-5.33	-	-	-
04OS-234	AA-06D	-	<	0.1		0.10	<	0.005	-5.18	-	-	-
05OS-135	AA-06D	-	<	0.1	<	0.2	<	0.005	-	-	1	0.3
04OS-121	AA-07S	-	<	0.25	<	0.25	<	0.01	-5.41	-	-	-
04OS-222	AA-07S	-	<	0.1	<	0.1	<	0.005	-6.02	-	2.72	0.27
05OS-138	AA-07S	-	<	0.1	<	0.2	<	0.005	-	-	-	-
04OS-153	AA-07D	-		-		-		-	-5.58	-	-	-
04OS-223	AA-07D	-	<	0.15		0.27	<	0.005	-5.72	-	0.93	0.25
05OS-137	AA-07D	-	<	0.1	<	0.2	<	0.005	-	-	-	-
04OS-157	AA-08S	-		-		-		-	-5.74	-	-	-

Field Sample ID	Station name	Oxalate, dissolved (mg/L)	q	Propionate, dissolved (mg/L)	q	Succinate, dissolved (mg/L)	q	Toluene, dissolved (mg/L)	O-18/O-16, stable isotope ratio (permil)	H-2/H-1, stable isotope ratio (permil)	H-3, tritium units+/- 1 sigma	H-3 uncertainty tritium units
04OS-221	AA-08S	-		13	<	0.15	<	0.005	-5.79	-	1.35	0.24
05OS-123	AA-08S	-	<	0.25	<	0.5	<	0.005	-	-	-	-
04OS-156	AA-08D	-		-		-		-	-5.60	-	-	-
04OS-218	AA-08D	-		12	<	0.15	<	0.005	-5.46	-	-0.07	0.23
05OS-124	AA-08D	-	<	0.05	<	0.1	<	0.005	-	-	-	-
04OS-155	AA-09S	-		-		-		-	-5.90	-	-	-
04OS-232	AA-09S	-		0.20	<	0.15	<	0.005	-5.76	-	0.3	0.27
05OS-122	AA-09S	-		0.52	<	0.5	<	0.005	-	-	-	-
04OS-154	AA-09D	-		-		-		-	-5.53	-	-	-
04OS-217	AA-09D	-	<	0.15	<	0.15	<	0.005	-5.55	-	0	0.23
05OS-121	AA-09D	-	<	0.05	<	0.1	<	0.005	-	-	-	-
04OS-152	AA-10S	-		-		-		-	-6.28	-	-	-
04OS-224	AA-10S	-	<	0.05	<	0.05	n	0.003	-6.20	-	4.2	0.3
05OS-127	AA-10S	-	<	0.05	<	0.1		0.006	-	-	-	-
04OS-151	AA-10M	-		-		-		-	-3.86	-	-	-
04OS-229	AA-10M	-		10	<	0.05	<	0.005	-5.82	-	-	-
05OS-126	AA-10M	-	<	0.05	<	0.1	<	0.005	-	-	1.7	0.3
04OS-158	AA-10D	-		-		-		-	-5.65	-	-	-
04OS-215	AA-10D	-	<	0.15	<	0.15		0.022	-5.76	-	0.27	0.21
05OS-125	AA-10D	-	<	0.05	<	0.1		0.026	-	-	-	-
04OS-161	AA-11S	-		-		-		-	-5.76	-	-	-
04OS-225	AA-11S	-	<	0.05	<	0.05	<	0.005	-5.78	-	-	-
05OS-131	AA-11S	-	<	0.05	<	0.1	<	0.005	-	-	4.5	0.4
04OS-160	AA-11M	-		-		-		-	-5.69	-	-	-
04OS-228	AA-11M	0.33		21	<	0.1	<	0.005	-5.42	-	0	0.3
05OS-132	AA-11M	-	<	0.05	<	0.1		2.2	-	-	-	-
04OS-159	AA-11D	-		-		-		-	-5.67	-	-	-
04OS-213	AA-11D	-	<	0.05	<	0.05	<	0.005	-5.31	-	0.23	0.23
05OS-130	AA-11D	-	<	0.05	<	0.1		0.017	-	-	-	-
04OS-165	AA-12S	-		-		-		-	-5.74	-	-	-
04OS-227	AA-12S	-		9.8	<	0.1	<	0.005	-5.71	-	-0.2	0.3
05OS-114	AA-12S	-	<	0.05	<	0.5	<	0.005	-	-	0.1	0.29
04OS-164	AA-12D	-		-		-		-	-5.57	-	-	-
04OS-214	AA-12D	-	<	0.15	<	0.15	<	0.005	-5.48	-	0.12	0.22
05OS-115	AA-12D	-	<	0.05	<	0.5	<	0.005	-	-	-0.12	0.23
04OS-163	AA-13S	-		-		-		-	-5.82	-	-	-
04OS-220	AA-13S	0.39		87	<	0.1	<	0.005	-5.73	-	0.19	0.23
05OS-119	AA-13S	0.03	<	0.15	<	0.3	<	0.005	-	-	-0.33	0.22
04OS-162	AA-13D	0.05		-		-		-	-5.71	-	-	-
04OS-219	AA-13D	0.22		35	<	0.15	<	0.005	-5.60	-	0.15	0.23
05OS-120	AA-13D	-		0.36	<	0.1	<	0.005	-	-	-0.05	0.23
03OS-155	AA-60S	-		-		-		-	-	-	-	-
03OS-218	AA-60S	-		-		-		-	-	-	-	-
04OS-108	AA-60S	-	<	0.15	<	0.15		-	-	-	-	-
03OS-154	AA-60D	-		-		-		-	-	-	-	-

Field Sample ID	Station name	Oxalate, dissolved (mg/L)	q	Propionate, dissolved (mg/L)	q	Succinate, dissolved (mg/L)	q	Toluene, dissolved (mg/L)	O-18/O-16, stable isotope ratio (permil)	H-2/H-1, stable isotope ratio (permil)	H-3, tritium units+/- 1 sigma	H-3 uncertainty tritium units 1 sigma
03OS-210	AA-60D	-	<	0.07		0.10	n	0.001	-	-	-	-
04OS-107	AA-60D	-	<	0.05	<	0.05		-	-5.89	-	-	-
04OS-204	AA-60D	-	<	0.05	<	0.05	<	0.005	-	-	-	-
05OS-116	AA-60D	-	<	0.05	<	0.1	<	0.005	-	-	1.46	0.26
03OS-153	AA-61	-		-		-		-	-	-	-	-
03OS-209	AA-61	-		0.3		0.04		0.025	-	-	-	-
04OS-101	AA-61	-	<	0.1	<	0.1		-	-	-	-	-
04OS-206	AA-61	-	<	0.1	<	0.1	<	0.005	-	-	-	-
05OS-129	AA-61	-	<	0.15	<	0.3	n	0.002	-	-	-	-
04OS-202	AA-62	-	<	0.1	<	0.1	<	0.005	-	-	-	-
05OS-128	AA-62	-	<	0.1	<	0.2	<	0.005	-	-	-	-
02OS-434	AE-04	-		-		-		-	-	-	-	-
02OS-332	AE-05	-		-		-		-	-	-	-	-
02OS-333	AE-06	-		-		-	<	0.11	-	-	-	-
02OS-435	AE-06	-		-		-		-	-	-	-	-
04OS-111	AE-06	-	<	0.05	<	0.05		-	-5.83	-	-	-
02OS-334	AE-07	-		-		-		-	-	-	-	-
04OS-110	AE-07	-		-		-		-	-	-	-	-
02OS-326	AE-08	-	<	0.25	<	0.1	<	0.11	-5.18	-27.79	-	-
02OS-432	AE-08	-	<	0.1	<	0.06		-	-4.64	-	-	-
04OS-114	AE-08	-	<	0.15	<	0.15		-	-5.96	-	-	-
02OS-331	AE-10	-	<	0.05		0.04	<	0.11	-5.92	-38.29	-	-
02OS-328	AE-12	-	<	0.2		0.27	<	0.11	-3.06	-18.65	-	-
02OS-436	AE-12	-	<	0.1	<	0.04		-	-	-	-	-
02OS-325	AE-13	-		-		-	<	0.11	-5.11	-28.95	-	-
02OS-329	AE-13	-	<	0.05		0.14	<	0.11	-5.31	-29.04	-	-
02OS-431	AE-13	-	<	0.05	<	0.12		-	-5.38	-	-	-
03OS-118	AE-13	-	<	0.05	<	0.02	n	0.029	-	-	-	-
03OS-223	AE-13	-		-		-		-	-	-	-	-
04OS-102	AE-13	-	<	0.05	<	0.05		-	-	-	-	-
04OS-207	AE-13	-	<	0.05	<	0.05	<	0.005	-	-	-	-
03OS-116	AE-14	-		-		-		-	-	-	-	-
02OS-330	AE-15	-		-		-		-	-	-	-	-
02OS-437	AE-15	-	<	0.2	<	0.12		-	-	-	-	-
03OS-115	AE-15	-		-		-		-	-	-	-	-
03OS-113	AE-16	-		-		-		-	-	-	-	-
03OS-114	AE-17	-		-		-		-	-	-	-	-
03OS-112	AE-18	-		-		-		-	-	-	-	-
02OS-433	AE-19	-		-		-		-	-	-	-	-
03OS-109	AE-51	-		-		-		-	-	-	-	-
03OS-220	AE-51	-		-		-		-	-	-	-	-
03OS-219	AE-52	-		-		-		-	-	-	-	-
04OS-208	AE-52	-	<	0.25	<	0.25	<	0.005	-	-	-	-
03OS-111	AE-53	-	<	0.05	<	0.06	<	0.05	-	-	-	-
03OS-222	AE-53	-		-		-		-	-	-	-	-

Field Sample ID	Station name	Oxalate, dissolved (mg/L)	q	Propionate, dissolved (mg/L)	q	Succinate, dissolved (mg/L)	q	Toluene, dissolved (mg/L)	O-18/O-16, stable isotope ratio (permil)	H-2/H-1, stable isotope ratio (permil)	H-3, tritium units+/- 1 sigma	H-3 uncertainty tritium units 1 sigma
04OS-106	AE-53	-	<	0.15	<	0.15		-	-	-	-	-
04OS-210	AE-53	-	<	0.05	<	0.05	<	0.005	-	-	-	-
03OS-110	AE-54	-		-		-		-	-	-	-	-
03OS-221	AE-54	-		-		-		-	-	-	-	-
04OS-209	AE-54	-	<	0.05		0.25	<	0.005	-	-	-	-
03OS-117	AE-56	-	<	0.14		0.30		0.066	-	-	-	-
04OS-112	AE-56	0.16		-		-		-	-	-	-	-
02OS-324	AP-01	-		44		1.4		0.34	-2.77	-13.58	-	-
02OS-327	AR-01	-	<	0.1	<	0.02	<	0.11	-5.66	-32.97	1.3	0.3
02OS-438	AR-01	-	<	0.1	<	0.02		0.058	-6.34	-	-	-
03OS-105	AR-01	-	<	0.1		0.08		0.20	-	-	-	-
03OS-206	AR-01	-	<	0.34		0.14		0.067	-	-	-	-
04OS-113	AR-01	-	<	0.05	<	0.05		-	-6.5	-	-	-
04OS-235	AR-01	0.04	<	0.05	<	0.05		0.006	-6.53	-	3.1	0.3
05OS-133	AR-01	tr	<	0.05	<	0.1		0.017	-	-	0.1	0.3
Site B; monitoring wells												
02OS-322	BA-01S	-		-		-		-	-5.46	-30.33	-	-
02OS-403	BA-01S	-	<	0.05	<	0.08		-	-5.36	-	-	-
02OS-516	BA-01S	-		-		-		0.26	-	-	-	-
03OS-141	BA-01S	-	<	0.05		0.03	n	0.006	-	-	-	-
03OS-216	BA-01S	-	<	0.1		0.13	<	0.01	-	-	-	-
04OS-125	BA-01S	-	<	0.05	<	0.05	<	0.01	-6.53	-	-	-
04OS-239	BA-01S	-	<	0.25	<	0.25	<	0.005	-5.90	-	-	-
05OS-106	BA-01S	-	<	0.25	<	0.5	<	0.005	-	-	1	0.3
02OS-323	BA-01D	-		-		-		-	-5.60	-30.66	-	-
02OS-405	BA-01D	-	<	0.15	<	0.15		-	-5.87	-	-	-
02OS-517	BA-01D	-		-		-		0.30	-	-	-	-
03OS-142	BA-01D	-	<	0.1		0.13	n	0.004	-	-	-	-
03OS-217	BA-01D	-	<	0.21	<	0.04	<	0.01	-	-	-	-
04OS-126	BA-01D	-	<	0.25	<	0.25	n	0.001	-5.91	-	-	-
04OS-240	BA-01D	-	<	0.25	<	0.25	<	0.005	-5.99	-	-	-
05OS-107	BA-01D	-	<	0.15	<	0.3	<	0.005	-	-	-0.4	0.3
02OS-318	BA-02S	-		-		-		-	-5.54	-32.38	-	-
02OS-319	BA-02D	-		-		-		-	-5.57	-31.74	-	-
02OS-401	BA-02D	-	<	0.3	<	0.02		-	-6.07	-	-	-
02OS-501	BA-02D	-		-		-		0.33	-	-	-	-
03OS-119	BA-02D	-	<	0.17	<	0.04		0.077	-	-	-	-
03OS-211	BA-02D	-	<	0.14	<	0.04	n	0.0012	-	-	-	-
04OS-124	BA-02D	-	<	0.25	<	0.25	<	0.01	-6.02	-	-	-
04OS-238	BA-02D	-	<	0.25	<	0.25	<	0.005	-5.87	-	-	-
05OS-102	BA-02D	-		-		-		-	-	-	-	-
02OS-320	BA-03S	-		-		-		1.3	-5.52	-32.08	-	-
02OS-504	BA-03S	-		-		-		0.27	-	-	-	-
03OS-120	BA-03S	-	<	0.1	<	0.04	<	0.05	-	-	-	-
03OS-212	BA-03S	-	<	0.1	<	0.04	n	0.002	-	-	-	-

Field Sample ID	Station name	Oxalate, dissolved (mg/L)	q	Propionate, dissolved (mg/L)	q	Succinate, dissolved (mg/L)	q	Toluene, dissolved (mg/L)	O-18/O-16, stable isotope ratio (permil)	H-2/H-1, stable isotope ratio (permil)	H-3, tritium units+/- 1 sigma	H-3 uncertainty tritium units 1 sigma
04OS-122	BA-03S	-	<	0.15	<	0.15	n	0.001	-5.45	-	-	-
04OS-236	BA-03S	-	<	0.15	<	0.15	<	0.005	-5.42	-	-	-
05OS-105	BA-03S	-	<	0.15	<	0.3	<	0.005	-	-	-	-
02OS-321	BA-03D	-		-		-		-	-5.47	-31.56	-	-
02OS-402	BA-03D	-	<	0.1	<	0.1		-	-5.91	-	-	-
02OS-505	BA-03D	-		-		-		0.39	-	-	-	-
03OS-121	BA-03D	-	<	0.17	<	0.04	<	0.05	-	-	-	-
03OS-213	BA-03D	-	<	1.4		0.11	<	0.01	-	-	-	-
04OS-123	BA-03D	-	<	0.25	<	0.25	<	0.01	-5.85	-	-	-
04OS-237	BA-03D	-	<	0.25	<	0.25	<	0.005	-5.81	-	-	-
05OS-104	BA-03D	-	<	0.25	<	0.5	n	0.001	-	-	-	-
02OS-423	BE-01	-		1.3		1.2		-	-5.19	-	-	-
04OS-144	BE-01	-		-		-		-	-	-	-	-
02OS-303	BE-03	-		-		-		-	-5.40	-29.55	-	-
02OS-411	BE-03	-	<	0.1	<	0.04		-	-5.32	-	-	-
03OS-144	BE-03	-		-		-		-	-	-	-	-
02OS-408	BE-04	-		-		-		-	-	-	-	-
03OS-148	BE-04	-		-		-		-	-	-	-	-
04OS-242	BE-04	-		-		-		-	-	-	-	-
02OS-409	BE-06	-	<	0.15	<	0.15		-	-	-	-	-
02OS-519	BE-06	-		-		-		0.32	-	-	-	-
03OS-139	BE-06	-		-		-		-	-	-	-	-
02OS-305	BE-07	-	<	0.1		0.08		0.33	-5.45	-35.50	3.9	0.3
02OS-414	BE-07	-		-		-		-	-	-	-	-
02OS-415	BE-07	-	<	0.1	<	0.02		-	-5.39	-	-	-
02OS-508	BE-07	-		-		-		0.27	-	-	-	-
03OS-151	BE-07	-	<	0.05		0.88		0.19	-	-	-	-
04OS-136	BE-07	-	<	0.05	<	0.05		0.028	-6.30	-	-	-
02OS-422	BE-08	-	<	0.25	<	0.12		-	-5.44	-	-	-
02OS-515	BE-08	-		-		-		0.26	-	-	-	-
03OS-147	BE-08	-	<	0.05	<	0.02	<	0.05	-	-	-	-
04OS-129	BE-08	-	<	0.25	<	0.25	<	0.01	-5.40	-	-	-
02OS-412	BE-09	-	<	0.1	<	0.03		-	-5.41	-	-	-
02OS-511	BE-09	-		-		-		0.45	-	-	-	-
03OS-146	BE-09	-		0.09	<	0.02	n	0.005	-	-	-	-
04OS-128	BE-09	-	<	0.05	<	0.05	n	0.004	-5.64	-	-	-
02OS-413	BE-10	-	<	0.05	<	0.04		-	-	-	-	-
02OS-507	BE-10	-		-		-		0.32	-	-	-	-
03OS-129	BE-10	-	<	0.05	<	0.02	<	0.05	-	-	-	-
04OS-131	BE-10	-	<	0.1	<	0.1	<	0.01	-4.32	-	-	-
02OS-420	BE-11	-	<	0.1	<	0.04		-	-4.00	-	-	-
02OS-506	BE-11	-		-		-		0.35	-	-	-	-
03OS-128	BE-11	-	<	0.05	<	0.02	n	0.022	-	-	-	-
04OS-130	BE-11	-	<	0.062	<	0.06	n	0.001	-3.43	-	-	-
02OS-421	BE-12	-	<	0.15	<	0.06		-	-4.97	-	-	-

Field Sample ID	Station name	Oxalate, dissolved (mg/L)	q	Propionate, dissolved (mg/L)	q	Succinate, dissolved (mg/L)	q	Toluene, dissolved (mg/L)	O-18/O-16, stable isotope ratio (permil)	H-2/H-1, stable isotope ratio (permil)	H-3, tritium units+/- 1 sigma	H-3 uncertainty tritium units 1 sigma
02OS-509	BE-12	-		-		-		-	-	-	-	-
03OS-145	BE-12	-	<	0.05		0.27		-	-	-	-	-
04OS-127	BE-12	-	<	0.05	<	0.05	<	0.01	-4.53	-	-	-
02OS-307	BE-13	-	<	0.1		0.04	<	0.11	-5.12	-33.16	3.8	0.3
02OS-416	BE-13	-	<	0.15	<	0.12		-	-5.36	-	-	-
02OS-512	BE-13	-		-		-		0.31	-	-	-	-
03OS-127	BE-13	-	<	0.34	<	0.08	<	0.05	-	-	-	-
04OS-138	BE-13	-	<	0.4	<	0.4		-	-	-	-	-
02OS-410	BE-15	-	<	0.075	<	0.15		-	-	-	-	-
02OS-518	BE-15	-		-		-		-	-	-	-	-
03OS-140	BE-15	-		-		-		-	-	-	-	-
02OS-417	BE-16	-	<	0.1	<	0.2		-	-5.44	-	-	-
02OS-513	BE-16	-		-		-		0.280	-	-	-	-
03OS-125	BE-16	-		-		-	n	0.007	-	-	-	-
04OS-137	BE-16	-	<	0.25	<	0.25	n	0.001	-	-	-	-
02OS-418	BE-17	-	<	0.35	<	0.2		-	-	-	-	-
02OS-514	BE-17	-		-		-		0.27	-	-	-	-
03OS-126	BE-17	-	<	0.34	<	0.1	<	0.05	-	-	-	-
04OS-135	BE-17	-	<	0.4	<	0.4		-	-	-	-	-
02OS-407	BE-18	-	<	0.15	<	0.04		-	-5.35	-	-	-
02OS-521	BE-18	-		-		-		0.33	-	-	-	-
03OS-149	BE-18	-		-		-		-	-	-	-	-
04OS-140	BE-18	0.30	<	0.05	<	0.05		-	-	-	-	-
03OS-150	BE-19	-		-		-		-	-	-	-	-
03OS-143	BE-51	-		-		-		-	-	-	-	-
04OS-143	BE-51	-	<	0.05	<	0.05	<	0.01	-5.79	-	-	-
03OS-135	BE-52	-		-		-		-	-	-	-	-
03OS-136	BE-53	-	<	0.05	<	0.02	<	0.05	-	-	-	-
04OS-142	BE-53	-	<	0.05	<	0.05		-	-	-	-	-
03OS-130	BE-54	-	<	0.05	<	0.02	n	0.007	-	-	-	-
03OS-134	BE-55	-		-		-		-	-	-	-	-
04OS-141	BE-55	-	<	0.25	<	0.25	<	0.01	-	-	-	-
04OS-245	BE-55	-	<	0.4	<	0.4	<	0.005	-4.64	-	-	-
03OS-133	BE-56	-	<	0.05	<	0.02	<	0.05	-	-	-	-
04OS-244	BE-56	-		-		-		-	-	-	-	-
03OS-132	BE-57	-		-		-	<	0.05	-	-	-	-
03OS-131	BE-58	-		-		-		-	-	-	-	-
04OS-139	BE-58	-	<	0.1	<	0.1		-	-	-	-	-
03OS-123	BE-59	-	<	0.05	<	0.02	n	0.005	-	-	-	-
04OS-133	BE-59	-	<	0.05	<	0.05	n	0.001	-	-	-	-
03OS-122	BE-60	-		-		-	<	0.05	-	-	-	-
04OS-132	BE-60	-	<	0.05	<	0.02	n	0.001	-4.79	-	-	-
03OS-124	BE-61	-		-		-	<	0.05	-	-	-	-
04OS-134	BE-61	-	<	0.25	<	0.25	n	0.001	-	-	-	-
03OS-152	BE-62	-	<	0.1		0.01	n	0.028	-	-	-	-

Field Sample ID	Station name	Oxalate, dissolved (mg/L)	q	Propionate, dissolved (mg/L)	q	Succinate, dissolved (mg/L)	q	Toluene, dissolved (mg/L)	O-18/O-16, stable isotope ratio (permil)	H-2/H-1, stable isotope ratio (permil)	H-3, tritium units+/- 1 sigma	H-3 uncertainty tritium units 1 sigma
04OS-145	BE-62	-	<	0.15	<	0.15		0.049	-5.83	-	-	-
04OS-248	BE-71	-		-		-		-	-	-	-	-
05OS-109	BE-71	-	<	0.5	<	1.0	<	0.005	-	-	0.66	0.24
04OS-249	BE-72	-		-		-		-	-	-	-	-
05OS-108	BE-72	-	<	0.4	<	0.8	<	0.005	-	-	1.2	0.3
04OS-247	BE-73	-		-		-		-	-	-	-	-
05OS-111	BE-73	-	<	0.05	<	0.1	<	0.005	-	-	7.2	0.4
04OS-250	BE-74	-		-		-		-	-	-	-	-
05OS-110	BE-74	-	<	0.75	<	1.5	<	0.005	-	-	1.4	0.25
02OS-304	BR-01 (prior to completion)	-	<	0.25		0.9		-	-5.52	-32.68	1.0	0.3
02OS-308	BR-01 (prior to completion)	-		-		-		-	-5.16	-31.46	-	-
02OS-315	BR-01 (prior to completion)	-		-		-		-	-5.67	-35.42	0.86	0.24
04OS-246	BR-01S	-		-		-		-	-	-	-	-
02OS-406	BR-01D	-	<	0.15	<	0.5		-	-5.93	-	-	-
02OS-503	BR-01D	-		-		-		0.33	-	-	-	-
03OS-137	BR-01D	-		-		-		-	-	-	-	-
03OS-215	BR-01D	-	<	0.52		0.05	<	0.01	-	-	-	-
04OS-241	BR-01D	-	<	0.05	<	0.05	<	0.005	-6.20	-	-	-
05OS-103	BR-01D	-		-		-		-	-	-	-	-
02OS-312	BR-02 (prior to completion)	-		-		-		-	-5.72	-34.11	-	-
02OS-313	BR-02 (prior to completion)	-	<	0.1		0.04	<	0.11	-5.70	-35.07	1.7	0.3
02OS-335	BR-02D	-	<	0.1	<	0.02		0.34	-5.07	-30.49	3.18	0.26
02OS-404	BR-02D	-	<	0.15	<	0.02		-	-6.04	-	-	-
02OS-502	BR-02D	-		-		-	<	0.11	-	-	-	-
03OS-138	BR-02D	-		-		-		-	-	-	-	-
03OS-214	BR-02D	-	<	0.17		0.08	n	0.007	-	-	-	-
04OS-243	BR-02D	-	<	0.25	<	0.25		0.095	-6.09	-	-	-
05OS-101	BR-02D	-	<	0.25	<	0.5		0.014	-	-	-	-
Site B; surface waters and reinjection tank												
01OS-113	small pool, near abandoned tank battery	-	<	0.25	<	1.0		-	-5.23	-31.50	-	-
02OS-301	small pool, near abandoned tank battery	-		-		-		-	-1.38	-4.73	-	-
01OS-114	large pool, nr BA-01 well	-	<	0.1	<	0.4		-	-5.83	-32.41	-	-
01OS-201	EPA-1 "hand dug" hole	-	<	0.2	<	0.1		-	-3.54	-21.25	-	-
02OS-311	creek, near BA-01 well	-		-		-		-	-5.79	-37.70	-	-
01OS-202	injection pit	-	<	0.1	<	0.05		-	-1.47	-13.79	-	-
02OS-316	injection pit	-		-		-		-	-2.44	-26.45	-	-
02OS-317	main pit	-	<	0.1		0.06	<	0.11	-4.30	-26.66	3.11	0.12
02OS-510	main pit	-		-		-		-	-	-	-	-
02OS-314	reinjection tank, produced water	-	<	0.25	<	0.1		0.88	-3.07	-17.23	1.3	0.3